



Med-*DATA* Net™ LLC

PO Box 23 ~ North Branford CT 06471

Telephone 203 / 288-1588 ~ Fax 203 / 288-1589 ~ Email [info@meddatanet.com](mailto:info@meddatanet.com)

Commissioner of Patents & Trademarks  
Technology Center  
Art Unit 3626  
Washington, DC. 20231

Attention: Examiner Alexander Kalinowski

RE: First Office Action Response- Application 09/583,338

Inventor: William Reeves

Filing Date: 5/31/2000

**RECEIVED**  
JAN 27 2003  
GROUP 3600

*copy*  
*of 1/29/03*

Dear Mr. Kalinowski,

Reply Date: 11/20/02

Thank you for the advice you have given me by telephone over the last few months in regards to this patent application and office action. I have carefully reviewed your office action comments and will respond point by point to each objection you raise. As an inventor with 12 US patent and 5 foreign patents I have been through this process before and I am confident that we can work together to resolve these issues and move my patent forward with its claims. As a small entity and business owner I would appreciate any help and advise you could give me during this process, I certainly do not claim to know everything about prosecuting patents in a pro se manner

I will address each of your objections using the numbering you have used in your office action and in numerical order so that you may follow along easily.

**General Comments about this patent application:**

I would like to point out to you that our small business has actually developed and is using a computer system (invention) as described within this patent application along with the bodily worn devices and storage card. We have also successfully marketed our products to hospitals, physicians, And consumers so our invention is not an abstract idea but has real practical and useful applications.

I would also like to point out that this invention is related to 3 other patent applications (by me) which are in the process of issuing or being close to issuing with all claims intact: 6,467,690 (issued) 09/578,664 and 09/597,107. The four patents, when combined, describe pieces of an overall invention system for the storage, carrying and wearing, and retrieval of personal emergency medical data and records.

I would also point out to the examiner that before I wrote this (an all my patents) application I did an exhaustive patent search of prior art using many key words and phrases and have listed the prior art in my application which I felt most closely related to my application at the time it was written (but not necessarily conceived- I have a lab notebook in which I outline these inventions in 1993 and 1994).

The intent of this invention, which is consistent with its present use in practical medical applications, is to describe a novel system for organizing digital medical records, which could be stored and carried in bodily worn devices (or storage cards) and retrieved rapidly in a medical emergency by either handheld computer devices or more permanent computer devices. It is important to note that the quality, quantity and clinical significance of the medical records is important in properly treating user/patients in a medical emergency. Of particular importance is the memory capacity of the bodily worn device which must be capable of carrying EKG's, x-rays, blood and urine analysis, as well as other memory intensive tests and documents. A color photo ID is also stored within the bodily worn device which is also a large digital file.

In light of the memory intensive nature of medical records the prior art invention of Yeager PCT 97/22297 is woefully inadequate to provide for a device which is capable of storing and carrying a clinically significant and meaningful amount of medical records for properly treating patient/user in a medical emergency. In Yeager page 7 lines 1-8 it is clear that Yeager is limiting his data cell memory technology to either non-volatile SRAM or EPROM memory. This memory technology has severe limitations in capacity which would simply make Yeager's statements of "portable storage of all a person's medical records unrealistic and unattainable with his art. Yeager further limits his art by specifically citing the Dallas Semiconductor 1996 family of devices which, as of this date, do not hold more than 8,000 bits of digital data. To put it quite bluntly it appears the entire Yeager art of the data cell is clearly describing the technology incorporated by Dallas Semiconductor which was published and available to the public long before the 12/20/95 priority date or the 12/16/96 international filing date. The Yeager art and other prior art which is cited by the examiner contains other significant disadvantages including the fact that my bodily worn device and storage card art does not require any on board electrical battery for power source and I describe novel new ways to transmit both power and data to the bodily worn device in non-contact means. Yeager also has numerous other significant deficiencies to his art in relation to mine, including failing to teach how to provide for wireless transmission of data to and from his "data cell." Yeager mentions wireless transmission of data to and from his data cell but he fails to teach in any way how to accomplish this, making the claim hollow and meaningless. I will elaborate on this issue further and specifically point out how I teach wireless transmission of data to my bodily worn device as I specifically address each of the examiner's citations.

There is a wealth of medical data and studies that show that when a person arrives in an Emergency Room in trauma they rarely (less than 7% of the time) have any medical records or medical history with them and the ER has no means of gaining access to such medical data in a medical emergency. The result is that 93% of the people treated in US emergency rooms are treated with no benefit of medical history, current prescriptions, prior medical tests and knowledge of the patient. This results in many serious medical errors in the form of severe drug interactions, misdiagnosis, and mistreatment of patients which result in serious long term illness, lengthy hospital stays and in some cases death. Considering the fact that there were 110 million visits in the ER in 2001 this is a serious problem in the health care system.

I would also like to point out to the examiner that after re-reading my patent application text I concluded that I significantly short changed myself when I originally wrote my claims and missed numerous detailed claims which are all included in the original scope and body of my text (no new subject matter has been added) Therefore, I have added new claims to account for these oversights and well as modified some claims to clarify and strengthen the meaning and intent of the claims ( the examiner specifically requests this in his note 4 and 5- see below).

### **Specification Objections:**

2. The abstract is not on a separate sheet of paper. I have separated the abstract as required and modified it slightly to more clearly define the intent and practical use of the invention as described above.

### **Claim Objections**

3. I have made the corrections to the typos which the examiner noted and rearranged the text of the patent to conform to the suggested standard format for patent applications.

4& 5. The examiner has noted that my claims, and particularly claim 1, fail to distinctly point out the subject matter which is the invention. Accordingly, I have modified claim 1 and claims 2-15 to more distinctly point out the art of my invention. I have also added figures 7, 8 and 9 to more clearly and distinctly describe and point out the software art which is part of my invention. The examiner requested that I more specifically detail and describe the software of my art and specifically point out which sections of the hardware the software is acting upon and controlling.

In addition, after carefully reviewing the text of my patent, without adding any new material or art to the scope and subject matters, I have concluded that I missed some important claims that I should have included in my original filing. According to the USPO rules I have added these new claims to the modified claims included within this package, and said claims are within the original subject matter of my application.

I would also point out that I have included detailed descriptions of figures 7, 8 and 9 within the text of the body of the application which should further clarify the function of the software in my art. Again, these additions do not change or add to the original scope of the subject matter of my application.

6. The examiner has made a general reference to USC 103(a) in regards to art being obvious in relation to other prior art. I would respectfully point out to the examiner that the term "obvious" is a very subjective term as is certainly subject to the interpretation of the examiner and his knowledge of the specific art involved and its practical applications in industry.

In general you are using the argument that my invention and claims were "obvious at the time... to a person skilled in the art to which said subject matter pertains." I would respectfully submit that the term "obvious" is a subjective yardstick that is subject to the interpretation of the respective examiner, and their knowledge of the technology field and its practical industry applications. From my experience many novel ideas appear to be obvious with the benefit of hindsight and not having a complete understanding of the intent of the inventor which conceived the invention.

With this understanding I will further describe the intent of my invention as it relates to the application and will address point by point and in a factual manner your detailed objections to my claims.

I would also point out to the examiner that before I wrote this (an all my patents) application I did an exhaustive patent search of prior art using many key words and phrases and have listed the prior art in my application which I felt most closely related to my application at the time it was written (but not necessarily conceived- I have a lab notebook in which I outline these inventions in 1993 and 1994).

7. The examiner uses the "obvious" criterion and cites Yeager 97/22297 and Sellers 5,678,562. The examiner specifically cites the Yeager abstract and fig 1 as "discloses an apparatus for storing and/or retrieving and/or organizing medical records and other vital personal information from bodily worn storage devices." After careful review of the Yeager abstract I would respectfully disagree with some of the examiner's observations. Specifically, the Yeager abstract makes no mention at all, from either a conceptual or literal perspective, of "retrieving" or "organizing" or "other vital personal information." I simply do not see how the examiner can infer such items from the Yeager abstract and it is my respectful opinion that the examiner is reading more into the Yeager abstract than really exists. The terms "organizing" and "vital personal information" are key points which are specific aspects of my art which are simply not part of the Yeager art. Specifically, I describe in detail how the condensed medical records of my art are organized in a priority fashion based on the severity of the pre-existing medical condition of the user and ranked by weighted average based on their clinical utility in treating a user in a medical situation. In addition, Yeager makes no reference to "other vital personal information" other than medical records. My art specifically includes a color photo ID of a user, living will instructions, organ donor instructions, and other personal non-medical information which could include banking information, credit card information and other personal and family related information which may aid in a medical or other type of emergency. Yeager does use the word "worn" in his abstract and specifically limits his art to such worn devices. My art is not specifically limited to worn devices and I specifically describe high capacity storage cards and data storage disks (my figure 6) which can be either carried in the pocket or wallet and are not specifically worn. Based on the scope of this subject matter in my art I have modified both the title of my invention and abstract to reflect the broader scope of my art in terms of "personal data storage devices" and specifically "worn" devices.

From a practical point of view Yeager's abstract, and the body of his invention, describe storing a person's "medical records." Yeager describes storing the complete medical records and archives of a person on this data cell device. This is simply an impractical concept, particularly in the context of a medical emergency as described by Yeager. Emergency medicine is a highly specialized form of medicine and presenting the complete archives of a person's medical history would have little or no practical medical value. Emergency medicine, and its utilization of prior medical data of a patient, specifically relies on a focused organization of medical data based on a ranking (priority) of the severity of a pre-existing condition and the clinical utility of the medical data in treating the pre-existing medical condition during said emergency. No invention or prior art, including Yeager or Sellers or other, describes the art in my application for prioritizing and ranking said medical data by weighted average in order of severity of pre-existing condition. This "organization" as described by my art is a superior art and technology which would not have been obvious to one skilled in the art and specifically has not been taught by any of the prior art or the examiner.

In addition, it would not have been obvious to a person skilled in the art to have included a high capacity data storage card or a data disk as described in my 6,467,690 patent which issued on 10/22/02. I also have art which is related to this application which is further described in 09/578,664 and 09/597,107 which have been previously noted and referenced in the reorganized body of my application (enclosed).

The examiner cites Yeager page 5 lines 5-15, line 28 and page 6 line 2 and table 1 as Yeager teaching a "bodily worn storage device capable of storing digitized (digital) personal medical records and other vital information." After careful review of these citations I can find no reference to key concepts such as "digital or digitize" and "other vital information. In a very broad sense the scope of the Yeager art is "similar" to my art but my art is far superior and an improvement over the Yeager art by virtue of my teaching a data storage device which does not require a battery or on board power cell, teaching how to simultaneously transmit data signals and electrical power to my storage device in a non-contact wireless manner, high capacity personal data storage devices capable of storing over 200 megs of practical clinical medical information, and a means of organizing the medical records in a unique priority system based on a weighted average of risk indicators and clinical severity or pre-existing medical conditions and their treatment in a medical emergency.

The examiner cites Yeager page 5 lines 18-23 as citing "a portable field unit.... transmitting said digital information by wireless means." I assume the examiner is referring to Yeager's claim 9 and the unique wand being able to send data to and from the data cell via wireless means(?) After a careful review of the entire Yeager patent I find no reference to any art at all which teaches how this "wireless data transfer from the wand to the data cell is to take place. Yeager specifically cites on page 7 the data cell comprising either SRAM, EPROM, non volatile memory, along with specifically citing the Dallas Semiconductor 19XX family of touch memory devices. It is well known within the electronics industry, and to those skilled in the art, that none of the devices references by Yeager are capable of such wireless data transmission. Yeager makes no attempt to teach how such semi conductor storage devices could send and receive data in a wireless manner. Therefore, one must conclude that the Yeager patent is deficient and one must question how the international examiner allowed Yeager's claims to be allowed on this wireless issue. My application is very specific in its art in this regard and I teach in detail how data is transmitted as well as received to and from the data storage devices described herein, in a wireless manner (including Radio Frequency means and Inductance means). I also teach in a specific and detailed manner how electrical power is transmitted to the storage devices via non contact wireless means (inductance and other means).

The examiner cites Yeager page 13, lines 5-14 and 17-30 as "a base unit capable of receiving said digital medical records and organizing them into readable and medically significant information for emergency treatment options." After examining these citations I see no specific reference at all to Yeager using the term "medically significant" or "significant." In general terms Yeager describes storing general medical information which "may be useful in an emergency." The Yeager approach is to basically "shotgun" it and present a physician with a listing medical information and it is up to the physician to sort through the information and determine what is appropriate to use in an emergency where time and accuracy are critical to patient survival. There is nothing unique or novel about Yeager's approach in organizing these records. This is a woefully inadequate means of providing for medical information in an emergency. As previously described emergency medicine is a very specialized and niche discipline of medicine which requires very specific clinical information, medical tests, prior medical records and other patient information in order to accurately and efficiently diagnose and treat people in a medical emergency. My art is far superior and unique to the Yeager art because I specifically teach a novel mathematical method for combining clinical risk factors, statistical probability factors for proper medical treatment and outcome which provide an accurate and scientific means of organizing medical records in a priority manner for the optimal treatment of patients in medical emergencies. My art has been devised with the advise of some of the leading Director of Emergency Medicine in the US including Dr. Michael Carius, President of the American College of Emergency Physicians. My art methodizes the complex cognitive approach which emergency physicians must take each time they encounter a medical emergency with perhaps some prior medical records present. A physician must cognitively and somewhat subjectively weight the risk

(Cont)

factors of pre-existing conditions, along with the prior medical records which may be present, and weight these factors against the time constraints of performing additional tests in the ER versus rapid treatment bases on the statistical probability of a positive patient outcome. My art unique in this regard and no one (Yeager or other citations included) has ever combined these risk factors and medical records into a means of organizing and prioritizing medical data for emergency medical treatment. Please reference figure 8 of my application in regard to the organization of the records and its description in the text.

I would also point out to the examiner that I have modified the software sub-claim of claim 1 to further clarify the organization of the medical data as part of my art.

The examiner cites Yeager figures 7A and 7B page 7 lines 20 and page 8 line 10 as "software for digitizing, organizing and displaying critical patient information in page format....." Again, based on the arguments presented above, my approach to organizing medical records based on establishing a priority by novel risk weighing factor of pre-existing conditions, time lapse to treatment, clinical risk factors and other factors, is much more effective and objective as a means of providing ER physicians and other treating medical personnel with an objective and rapid means of making complex treatment decisions (minutes and seconds count in ER treatment and could be the difference between life and death). Again, if the examiner references my figures 4, 7 and 8 and their detailed descriptions I am confident that he will conclude that my approach is novel and superior to the Yeager approach, as well as the other examiner citations. I would also point out to the examiner that I have modified the software sub-claim of claim 1 to further clarify the organization of the medical data as part of my art.

Again, in terms of software and medical data organization, if one looks at Yeager Table 1 this is an overly simplistic and medically inferior means of organizing patient information for a medical emergency. As one can see, as previously cited by me, the Yeager memory storage approach with the data cell he describes, along with this data organization approach in Table 1 is woefully inadequate for storing any critical baseline clinical tests such as EKG, blood analysis, urine analysis, x-ray, echocardiogram and other tests which require significant memory capacity and could easily save a patient's life in an emergency. The data cell which Yeager describes can only hold about 4000 bits of digital information (including the Dallas 19xx EPROMS and other devices as of this date). The typical digital EKG file takes up a minimum of about 20 kilobytes of data and ER physicians have stated that having a baseline EKG, particularly in the treatment of any person with a pre-existing cardiac condition is THE MOST important piece of medical information for establishing a risk baseline of the patient for treatment options. As one can see from Yeager's Table 1 he makes no attempt to organize the medical data in any specific priority based on risk factors and pre-existing condition which is described in detail in my art, and is far superior to Yeager's approach. In terms of proper memory capacity for a data storage device for this application I would point to my patent 6, 467, 690 and figure 6 of this application which clearly describes a digital storage card capable of holding a minimum of 2000-300 megabytes of digital medical records. This card is capable of storing x-rays, CAT scans and other critical medical tests which could be life saving in an emergency. This art is far superior to Yeager's art. I would also point out to the examiner that I have modified the software sub-claim of claim 1 to further clarify the organization of the medical data as part of my art.

The examiner acknowledges that Yeager does not disclose a "patient monitor module for interfacing..... with an emergency room monitoring device. The examiner cites Sellers as disclosing

(cont)

"a patient monitor module..... monitoring device and references Sellers fig 4 and column 5 lines 19-42. After carefully reviewing the entire Sellers patent 5,678,562, its abstract, background of invention and the specific sections cited by the examiner I would respectfully point out to the examiner that he is comparing an apple (Sellers art) to an orange (my art) and the two patents really have nothing in common. Specifically, the practical application and scope of Sellers invention is an ambulatory (portable) EKG monitor (typically called a Holter Monitor by the medical industry and has been in use since about the late 1970's) which is worn by a patient so as to record cardiac events on a 24 hour a day basis as a person goes about their normal routine. Sellers also described a data disk cartridge which can be removed from the ambulatory monitor and put in another device for reading the stored EKG data. I fail to see how the examiner can compare this art to my art given the significantly different scope of the application of my device in reference to the Seller's device. Specifically in the Seller's citation column 5 lines 19-42 he is using the terms "monitor" and "module" and "patient" but not in the same context that I use them in my art. With all due respect to the examiner I find this to be a common problem with examiners wherein you put in key words into a patent search database and pull out patents as "prior art" if they have the same combination of key words without delving into the details of how these key words are really being used in the prior art patents. When Sellers uses the term "monitor" he is not referring to an emergency room patient monitor as the examiner suggests. Sellers is referring to the ambulatory Holter EKG monitor which is worn by a patient and has nothing to do with ER monitors. In contrast I am referring to ER monitors in my art. When Sellers uses the term "module" he is referring to "electronic module 20" as shown in figure 4. Sellers use of the term module is purely coincidental with my use of the term module and we are not describing the same thing. Sellers module does not have the same characteristics as mine: being a separately enclosed plug in module, with its own separated electronics, able to interface my unique portable storage device to an existing ER monitor via the interface wand and module electronics, and containing my unique software for organizing and displaying prioritized medical records. Sellers is simply describing a module which contains a computer chip and certain software for interfacing to the EKG Holter monitor he describes and said Sellers module does not plug into an ER monitor. Based on Sellers description of his "module" it would not have been obvious for any one skilled in the art to make the leap to the module described in my art, particularly since the module described by Sellers is not remotely similar to my intended application. Further, the examiner cites Sellers col 2, lines 16-19 and lines 45-48. Again, the examiner is comparing apples to oranges and there is a misuse of the terms module and monitor. It is simply a coincidence that Sellers uses the term wireless in his art and I use the term wireless in my art. Again, Sellers ambulatory Holter monitor is a completely different technology and device. A Holter monitor is a continuous and active EKG recording device for looking at "non emergency" EKG events as a person goes about their normal daily routine. Sellers use of wireless technology is meant to make it easier for medical personnel to read and analyze this data in a routine and non-emergency situation. Nowhere within the Sellers citations, as noted by the examiner, does Sellers contemplate his technologies use for emergency medical situations. It would not have been obvious to anyone skilled in the art to combine my novel art of providing a high capacity storage device as noted in my 6,467,690 patent with a wireless means to transmit emergency medical data organized in my unique priority, to a remote ER patient monitor.

#### As to claim 2:

The examiner cites Yeager as disclosing "the interface wand is capable of ..... by non-contact and wireless means." Again, after careful review of the Yeager he does make several vague references to wireless communication in his text, but what is glaringly omitted is Yeager teaching ANY means at all of how to achieve this wireless communication. Yeager is very specific in noting EPROM, DRAM

(cont)

and Dallas 19xx semiconductor devices for his data cell. As of the writing of his patent and as of this current date none of these store chip technologies has ANY wireless communication capabilities at all, and of particular difficulty, if not impossible, would be a carrier signal method of transmitting and receiving data from said devices. My art is very specific in teaching wireless means, via Inductance and Radio Frequency means, of sending and receiving data to the storage device and well as sending electrical power to said device to avoid the weight, bulk and significant other problems associated with having a battery in the storage device. In addition, please reference my arguments on this wireless issue in claim 1 above. In addition, Yeager fails to adequately describe the art of his probe 26. What is this probe? How does it work? What art and method transmits and receives data to and from the data cell? How is non-contact wireless transmission of data accomplished? What is the probe comprised of? There is no detailed description of the probe or a figure of it in Yeager's patent. I have added a detailed description of my Interface wand to my application to further clarify this issue

### As to claim 3:

The examiner cites Yeager as disclosing "the bodily worn device is capable of ..... by non-contact and wireless means." Again, after careful review of the Yeager he does make several vague references to wireless communication in his text, but what is glaringly omitted is Yeager teaching ANY means at all of how to achieve this wireless communication. Yeager is very specific in noting EPROM, DRAM and Dallas 19xx semiconductor devices for his data cell. As of the writing of his patent and as of this current date none of these store chip technologies has ANY wireless communication capabilities at all, and of particular difficulty, if not impossible, would be a carrier signal method of transmitting and receiving data from said devices. My art is very specific in teaching wireless means, via inductance and Radio Frequency means, of sending and receiving data to the storage device and well as sending electrical power to said device to avoid the weight, bulk and significant other problems associated with having a battery in the storage device. In addition, please reference my arguments on this wireless issue in claim 1 above. If one references Yeager fig 4 and its detailed description it is entirely unclear how the wireless transmission of data is to occur to and from this data cell device. Yeager offers no details of the technology or art to accomplish this wireless on contact transmission. In addition, Yeager fails to adequately describe the art of his probe 26. What is this probe? How does it work? What art and method transmits and receives data to and from the data cell? How is non-contact wireless transmission of data accomplished? What is the probe comprised of? What components of the data cell transmit and receive the data in non contact wireless fashion?

It is my opinion that the Yeager patent is completely deficient in teaching both the wireless art of the data cell and the wireless art of the probe 26 and I am very surprised the International examiner let his patent issue with such deficiencies.

### As to claim 4:

The examiner cites Yeager figs 1 & 9 as "the portable field unit receiving, storing, and displaying ..... on a lighted screen via the interface wand. Again, I would point out to the examiner that an integral part of my art is the unique method I disclose for prioritizing the medical data by risk factors, clinical significance in a medical emergency, and other weighted average factors described herein, and displaying said medical data in the prioritized fashion to facilitate emergency medical treatment. The Yeager patent does not teach such art and my art, as described herein, is far superior and advantageous to the Yeager art. I have modified claim 4 to further clarify and strengthen the



(cont)

unique prioritization aspect of the claim and displaying the data on the screen in priority manner.

#### As to claim 5:

The examiner cites Yeager page 5 lines 18-23 and page 13, lines 5-14 as "the portable field unit is capable of wireless transmission....." Again, after careful review of the Yeager he does make several vague references to wireless communication in his text, but what is glaringly omitted is Yeager teaching ANY means at all of how to achieve this wireless communication. Yeager is very specific in noting EPROM, DRAM and Dallas 19xx semiconductor devices for his data cell. As of the writing of his patent and as of this current date none of these store chip technologies has ANY wireless communication capabilities at all, and of particular difficulty, if not impossible, would be a carrier signal method of transmitting and receiving data from said devices. My art is very specific in teaching wireless means, via inductance and Radio Frequency means, of sending and receiving data to the storage device and well as sending electrical power to said device to avoid the weight, bulk and significant other problems associated with having a battery in the storage device. In addition, please reference my arguments on this wireless issue in claim 1 above. If one references Yeager fig 4 and its detailed description it is entirely unclear how the wireless transmission of data is to occur to and from this data cell device. Yeager offers no details of the technology or art to accomplish this wireless on contact transmission. What art and method transmits and receives data to and from the data cell? From the portable hand held device to the base unit? How is non-contact wireless transmission of data accomplished? What is the probe comprised of? What components of the data cell transmit and receive the data in non contact wireless fashion? Yeager's patent is deficient in this regard. And he fails to supply specific and detailed art. I have further modified my claim 5 to strengthen and more clearly define my art.

#### As to claim 6:

The examiner sites Yeager page 13 lines 17-31 as disclosing "the apparatus of claim 1 wherein.... Software to allow for the organization and display....." I would point out to the examiner that I have modified my claim 6 to include reference to figures 7 and 8 which describe in detail the art of my software and the unique organization of the medical records. In general terms Yeager describes storing general medical information that "may be useful in an emergency." The Yeager approach is to basically "shotgun" it and present a physician with a listing medical information and it is up to the physician to sort through the information and determine what is appropriate to use in an emergency where time and accuracy are critical to patient survival. There is nothing unique or novel about Yeager's approach in organizing these records. This is a woefully inadequate means of providing for medical information in an emergency. As previously described emergency medicine is a very specialized and niche discipline of medicine which requires very specific clinical information, medical tests, prior medical records and other patient information in order to accurately and efficiently diagnose and treat people in a medical emergency. My art is far superior and unique to the Yeager art because I specifically teach a novel mathematical method for combining clinical risk factors, statistical probability factors for proper medical treatment and outcome which provide an accurate and scientific means of organizing medical records in a priority manner for the optimal treatment of patients in medical emergencies. My art has been devised with the advice of some of the leading Director of Emergency Medicine in the US including Dr. Michael Carius, President of the American College of Emergency Physicians. My art methodizes the complex cognitive approach which emergency physicians must take each time they encounter a medical emergency with perhaps some prior medical records present. A physician must cognitively and somewhat subjectively weight the risk

(cont)

factors of pre-existing conditions, along with the prior medical records which may be present, and weight these factors against the time constraints of performing additional tests in the ER versus rapid treatment bases on the statistical probability of a positive patient outcome. My art unique in this regard and no one (Yeager or other citations included) has ever combined these risk factors and medical records into a means of organizing and prioritizing medical data for emergency medical treatment. Please reference figure 8 of my application in regard to the organization of the records and its description in the text.

**As to claim 7:**

The examiner cites Yeager page 5 lines 18-23 as disclosing "the interface wand is capable of ..... by non-contact and wireless means." Again, after careful review of the Yeager he does make several vague references to wireless communication in his text, but what is glaringly omitted is Yeager teaching ANY means at all of how to achieve this wireless communication. Yeager is very specific in noting EPROM, DRAM and Dallas 19xx semiconductor devices for his data cell. As of the writing of his patent and as of this current date none of these store chip technologies has ANY wireless communication capabilities at all, and of particular difficulty, if not impossible, would be a carrier signal method of transmitting and receiving data from said devices. Yeager also omits and fails to teach and art at all on how his probe 26 can transmit and receive data to the data cell. Given Yeager's deficiencies in the data cell described herein, it would be impossible for Yeager's probe to provide for wireless transmission of data to such a data cell. My art is very specific in teaching wireless means, via inductance and Radio Frequency means, of sending and receiving data to the storage device and well as sending electrical power to said device to avoid the weight, bulk and significant other problems associated with having a battery in the storage device. I also have a detailed description of my Interface wand which specifically teaches the wireless data transmission. In addition, please reference my arguments on this wireless issue in claim 1 above. In addition, Yeager fails to adequately describe the art of his probe 26. What is this probe? How does it work? What art and method transmits and receives data to and from the data cell? How is non-contact wireless transmission of data accomplished? What is the probe comprised of? There is no detailed description of the probe or a figure of it in Yeager's patent.

**As to claim 8:**

The examiner cites Yeager fig 1, page 5 lines 18-23, page 13, lines 5-14 as "...wherein the base unit is capable... in a wireless fashion." Again, after careful review of the Yeager he does make several vague references to wireless communication in his text, but what is glaringly omitted is Yeager teaching ANY means at all of how to achieve this wireless communication. Yeager is very specific in noting EPROM, DRAM and Dallas 19xx semiconductor devices for his data cell. As of the writing of his patent and as of this current date none of these store chip technologies has ANY wireless communication capabilities at all, and of particular difficulty, if not impossible, would be a carrier signal method of transmitting and receiving data from said devices. Yeager also omits and fails to teach and art at all on how his probe 26 can transmit and receive data to the data cell. Given Yeager's deficiencies in the data cell described herein, it would be impossible for Yeager's probe to provide for wireless transmission of data to such a data cell. Yeager also specifically fails to teach how data is transmitted to and received by the base unit in a wireless manner. My art is specific in teaching how data is transmitted in a wireless manner from the storage device through the interface wand to the portable hand held reader and then to a base unit. My art teaches radio frequency carrier signals, telecommunications signals and other wireless means which not be obvious to one skilled in the art.

My art is very specific in teaching wireless means, via inductance and Radio Frequency means, of sending and receiving data to the storage device and well as sending electrical power to said device to avoid the weight, bulk and significant other problems associated with having a battery in the storage device. I also have a detailed description of my Interface wand which specifically teaches the wireless data transmission. In addition, please reference my arguments on this wireless issue in claim 1 above. In addition, Yeager fails to adequately describe the art of his probe 26. What is this probe? How does it work? What art and method transmits and receives data to and from the data cell? How is non-contact wireless transmission of data accomplished? How is data transmitted to the hand held reader in a wireless fashion? To his based unit? Yeager does not teach these key points and his patent is deficient in this regard and my art is far superior and advanced in relation to his art.

#### As to claim 9:

The examiner cites Yeager figs 7A and 7B as "disclosing.....the base unit is capable of storing..... into prioritized pages for viewing." After careful review of figs 7A and 7B I see no reference at all any where on these figures to the term "prioritized" or "prioritized pages." After careful review of the

entire Yeager patent I see where he does use the term "prioritized" in a vague and general manner. Nowhere within Yeager does he specifically teach what he means by the term "prioritize" when he refers to the medical data. Does he mean to prioritize the data by date? By age? By chronological order? Yeager is deficient because he fails to teach and such means of setting priorities. In general terms Yeager describes storing general medical information that "may be useful in an emergency." The Yeager approach is to basically "shotgun" it and present a physician with a listing medical information and it is up the physician to sort through the information and determine what is appropriate to use in an emergency where time and accuracy and critical to patient survival. There is nothing unique or novel about Yeager's approach in organizing these records. This is a woefully inadequate means of providing for medical information in an emergency. As previously described emergency medicine is a very specialized and niche discipline of medicine which requires very specific clinical information, medical tests, prior medical records and other patient information in order to accurately and efficiently diagnose and treat people in a medical emergency. My art is far superior and unique to the Yeager art because I specifically teach a novel mathematical method for combining clinical risk factors, statistical probability factors for proper medical treatment and outcome which provide an accurate and scientific means of organizing medical records in a priority manner for the optimal treatment of patients in medical emergencies. My art has been devised with the advise of some of the leading Director of Emergency Medicine in the US including Dr. Michael Carius, President of the American College of Emergency Physicians. My art methodizes the complex cognitive approach which emergency physicians must take each time they encounter a medical emergency with perhaps some prior medical records present. A physician must cognitively and somewhat subjectively weight the risk factors of pre-existing conditions, along with the prior medical records which may be present, and weight these factors against the time constraints of performing additional tests in the ER verses rapid treatment bases on the statistical probability of a positive patient outcome. My art unique in this regard and no one (Yeager or other citations included) has ever combined these risk factors and medical records into a means of organizing and prioritizing medical data for emergency medical treatment. Please reference figure 8 of my application in regard to the organization of the records and its description in the text.

As the examiner can see I revised claim 9 to strengthen it and clarify my unique method of prioritizing the medical data stored on the storage device.

**As to claim 10:**

I have specifically added figs 7, 8, and 9 to my application to further define the software of my art per the examiners request. Please reference these figures and the descriptions enclosed.

The examiner cites Yeager fig 7A and 7B, page 13 lines 17-31 as "disclosing...the base unit contains software for the control logic.....on the display screen." After examining this text citation I see no specific reference at all to Yeager describing logic to control the software functions of a base unit, and instead Yeager gives a general description of scrolling functions of the software. In addition, Figures 7A and 7B do not teach or describe a base unit using any type of software logic for controlling the system.

Again, Yeager's software approach, which lacks specific descriptions of logic controls as cited by the examiner, is to basically "shotgun" it and present a physician with a listing medical information and it is up to the physician to sort through the information and determine what is appropriate to use in an emergency where time and accuracy are critical to patient survival. There is nothing unique or novel about Yeager's approach in organizing these records. This is a woefully inadequate means of providing for medical information in an emergency. As previously described emergency medicine is a very specialized and niche discipline of medicine which requires very specific clinical information, medical tests, prior medical records and other patient information in order to accurately and efficiently diagnose and treat people in a medical emergency. My art is far superior and unique to the Yeager art because I specifically teach a novel mathematical method for combining clinical risk factors, statistical probability factors for proper medical treatment and outcome which provide an accurate and scientific means of organizing medical records in a priority manner for the optimal treatment of patients in medical emergencies. My art has been devised with the advise of some of the leading Director of Emergency Medicine in the US including Dr. Michael Carlus, President of the American College of Emergency Physicians. My art methodizes the complex cognitive approach which emergency physicians must take each time they encounter a medical emergency with perhaps some prior medical records present. A physician must cognitively and somewhat subjectively weight the risk factors of pre-existing conditions, along with the prior medical records which may be present, and weight these factors against the time constraints of performing additional tests in the ER versus rapid treatment bases on the statistical probability of a positive patient outcome. My art unique in this regard and no one (Yeager or other citations included) has ever combined these risk factors and medical records into a means of organizing and prioritizing medical data for emergency medical treatment. Please reference figure 8 of my application in regard to the organization of the records and its description in the text.

Again, in terms of software and medical data organization, if one looks at Yeager Table 1 this is an overly simplistic and medically inferior means of organizing patient information for a medical emergency. As one can see, as previously cited by me, the Yeager memory storage approach with the data cell he describes, along with this data organization approach in Table 1 is woefully inadequate for storing any critical baseline clinical tests such as EKG, blood analysis, urine analysis, x-ray, echocardiogram and other tests which require significant memory capacity and could easily save a patient's life in an emergency. The data cell which Yeager describes can only hold about 4000 bits of digital information (including the Dallas 19xx EPROMS and other devices as of this date). The typical digital EKG file takes up a minimum of about 20 kilobytes of data and ER physicians have stated that having a baseline EKG, particularly in the treatment of any person with a pre-existing cardiac condition is THE MOST important piece of medical information for establishing a risk baseline of the patient for treatment options. As one can see from Yeager's Table 1 he makes no attempt to organize the medical data in any specific priority based on risk factors and pre-existing condition

(cont)

which is described in detail in my art, and is far superior to Yeager's approach. In terms of proper memory capacity for a data storage device for this application I would point to my patent 6, 467, 690 and figure 6 of this application which clearly describes a digital storage card capable of holding a minimum of 2000-300 megabytes of digital medical records. This card is capable of storing x-rays, CAT scans and other critical medical tests which could be life saving in an emergency. This art is far superior to Yeager's art. I would also point out to the examiner that I have modified the software sub-claim of claim 1 to further clarify the organization of the medical data as part of my art.

#### As to claim 11:

The examiner cites Yeager page 7, lines 20-27 as : a base unit capable of archiving and storing.....review." Again, after carefully examining this Yeager citation it is clear that Yeager is describing a very broad stroke software system for storing general medical data. Yeager is not specific about how the records are to be stored, the method of storage and retrieval, the logic behind such storage and retrieval and the priority system for storing said records. In terms of software and medical data organization, if one looks at Yeager Table 1 this is an overly simplistic and medically inferior means of organizing patient information for a medical emergency. As one can see, as previously cited by me, the Yeager memory storage approach with the data cell he describes, along with this data organization approach in Table 1 is woefully inadequate for storing any critical baseline clinical tests such as EKG, blood analysis, urine analysis, x-ray, echocardiogram and other tests which require significant memory capacity and could easily save a patient's life in an emergency. Again, Yeager's software approach, which lacks specific descriptions of logic controls as cited by the examiner, is to basically "shotgun" it and present a physician with a listing medical information and it is up to the physician to sort through the information and determine what is appropriate to use in an emergency where time and accuracy and critical to patient survival. There is nothing unique or novel about Yeager's approach in organizing these records. This is a woefully inadequate means of providing for medical information in an emergency. As previously described emergency medicine is a very specialized and niche discipline of medicine which requires very specific clinical information, medical tests, prior medical records and other patient information in order to accurately and efficiently diagnose and treat people in a medical emergency. My art is far superior and unique to the Yeager art because I specifically teach a novel mathematical method for combining clinical risk factors, statistical probability factors for proper medical treatment and outcome which provide an accurate and scientific means of organizing medical records in a priority manner for the optimal treatment of patients in medical emergencies. My art has been devised with the advise of some of the leading Director of Emergency Medicine in the US including Dr. Michael Carius, President of the American College of Emergency Physicians. My art methodizes the complex cognitive approach which emergency physicians must take each time they encounter a medical emergency with perhaps some prior medical records present. A physician must cognitively and somewhat subjectively weight the risk factors of pre-existing conditions, along with the prior medical records which may be present, and weight these factors against the time constraints of performing additional tests in the ER verses rapid treatment bases on the statistical probability of a positive patient outcome. My art unique in this regard and no one (Yeager or other citations included) has ever combined these risk factors and medical records into a means of organizing and prioritizing medical data for emergency medical treatment. Please reference figure 8 of my application in regard to the organization of the records and its description in the text.

**As to claim 12:**

The examiner acknowledges that Yeager does not teach a patient module with a printed circuit board and the other details of my art per my figure 5 and its detailed description. The examiner cites Sellers Col 4 line 51-65, col 5 lines 18-34, col 6 lines 3-10 as disclosing "a patient module contains interface board with electronic contacts....." After carefully reviewing the entire Sellers patent 5,678,562, its abstract, background of invention and the specific sections cited by the examiner I would respectfully point out to the examiner that he is comparing an apple (Sellers art) to an orange (my art) and the two patents really have nothing in common. Specifically, the practical application and scope of Sellers invention is an ambulatory (portable) EKG monitor (typically called a Holter Monitor by the medical industry and has been in use since about the late 1970's) which is worn by a patient so as the records cardiac events on a 24 hour a day basis as a person goes about their normal routine. Sellers also described a data disk cartridge which can be removed from the ambulatory monitor and put in another device for reading the stored EKG data. I fail to see how the examiner can compare this art to my art given the significantly different scope of the application of my device in reference to the Seller's device. Specifically in the Seller's citation column 5 lines 19-42 he is using the terms "monitor" and "module" and "patient" but not in the same context that I use them in my art. With all due respect to the examiner I find this to be a common problem with examiners wherein you put in key words into a patent search database and pull out patents as "prior art" if they have the same combination of key words with out delving into the details of how these key words are really being used in the prior art patents. When Sellers uses the term "monitor" he is not referring to an emergency room patient monitor as the examiner suggests. Sellers is referring to the ambulatory Holter EKG monitor which is worn by a patient and has nothing to do with ER monitors. In contrast I am referring to ER monitors in my art. When Sellers uses the term "module" he is referring to "electronic module 20" as shown in figure 4. Sellers use of the term module is purely coincidental with my use of the term module and we are not describing the same thing. Sellers module does not have the same characteristics as mine: being a separately enclosed plug in module, with its own separated electronics, able to interface my unique portable storage device to an existing ER monitor via the interface wand and module electronics, and containing my unique software for organizing and displaying prioritized medical records. Sellers is simply describing a module which contains a computer chip and certain software for interfacing to the EKG Holter monitor he describes and said Sellers module does not plug into an ER monitor. Based on Sellers description of his "module" it would not have been obvious for any one skilled in the art to make the leap to the module described in my art, particularly since the module described by Sellers is not remotely similar to my intended application. Further, the examiner cites Sellers col 2, lines 16-19 and lines 45-48. Again, the examiner is comparing apples to oranges and there is a misuse of the terms module and monitor. It is simply a coincidence that Sellers uses the term wireless in his art and I use the term wireless in my art. Again, Sellers ambulatory Holder monitor is a completely different technology and device. A Holter monitor is an continuous and active EKG recording device for looking at "non emergency" EKG events as a person goes about their normal daily routine. Sellers use of wireless technology is meant to make it easier for medical personnel to read and analyze this data in a routine and Non-emergency situation. No where within the Sellers citations, as noted by the examiner, does Sellers contemplate his technologies use for emergency medical situations. It would not have been obvious to anyone skilled in the art to combine my novel art of providing a high capacity storage device as noted in my 6, 467, 690 patent with a wireless means to transmit emergency medical data organized in my unique priority, to a remote ER patient monitor.

**As per claim 13:**

See my modifications to claim 13

(cont)

The examiner acknowledges that Yeager does not teach the apparatus of claim one "where in the patient module contain..... patient medical records." The examiner cites Sellers column 4 lines 51-65, column 5 lines 18-34, and column 6 lines 3-10 as "disclosing "the patient module contains an interface printed circuit board.... processes signals from patient electrodes."

Again, after carefully reviewing the entire Sellers patent 5,678,562, its abstract, background of invention and the specific sections cited by the examiner I would respectfully point out to the examiner that he is comparing an apple (Sellers art) to an orange (my art) and the two patents really have nothing in common. Specifically, the practical application and scope of Sellers invention is an ambulatory (portable) EKG monitor (typically called a Holter Monitor by the medical industry and has been in use since about the late 1970's) which is worn by a patient so as to record cardiac events on a 24 hour a day basis as a person goes about their normal routine. Sellers also described a data disk cartridge which can be removed from the ambulatory monitor and put in another device for reading the stored EKG data. I fail to see how the examiner can compare this art to my art given the significantly different scope of the application of my device in reference to the Seller's device. Specifically in the Seller's citation columns 4, column 5 and column 6 he is using the terms "monitor" and "module" and "patient" but not in the same context that I use them in my art. With all due respect to the examiner I find this to be a common problem with examiners wherein you put in key words into a patent search database and pull out patents as "prior art" if they have the same combination of key words without delving into the details of how these key words are really being used in the prior art patents. When Sellers uses the term "monitor" he is not referring to an emergency room patient monitor as the examiner suggests. Sellers is referring to the ambulatory Holter EKG monitor which is worn by a patient and has nothing to do with ER monitors. In contrast I am referring to ER monitors in my art. When Sellers uses the term "module" he is referring to "electronic module 20" as shown in figure 4. Sellers use of the term module is purely coincidental with my use of the term module and we are not describing the same thing. Sellers module does not have the same characteristics as mine: being a separately enclosed plug in module, with its own separated electronics, able to interface my unique portable storage device to an existing ER monitor via the interface wand and module electronics, and containing my unique software for organizing and displaying prioritized medical records. Sellers is simply describing a module which contains a computer chip and certain software for interfacing to the EKG Holter monitor he describes and said Sellers module does not plug into an ER monitor. Based on Sellers description of his "module" it would not have been obvious for any one skilled in the art to make the leap to the module described in my art, particularly since the module described by Sellers is not remotely similar to my intended application. After careful review of the 3 Sellers citations I can find no specific reference to a separate and "stand alone "module" as described by my art with contact pads which are capable of interfacing the "slave" module to the "master" monitor. In the three Sellers citations Sellers is describing "dedicated" and hard wired module with connectors which are permanently affixed to the patient monitor electronics. This module is not meant to be removed and plugged into another device easily and with portability as described by my art. Again, Sellers is using these terms differently than my use of them (semantics) and when Sellers uses the terms electrical contacts and electrodes he is referring to specific components of an EKG which are well known terms used in designing EKG monitors- but I am not using them the same way to describe my art.

Further, the examiner cites Sellers, column 1 lines 49-57 and column 2 lines 48-62, in light of Yeager as being obvious in teaching "the patient module containing printed circuit board for transmitting power to the module board and for transmitting and receiving....." Again, Yeager and Sellers are teaching much different art than mine which is outside of the scope and application of my art. The examiner is comparing apples to oranges in comparing Sellers and Yeager to my art. I am describing



(cont)

a module which is a portable "slave" device and a plug and play device which can be portably plugged into monitors which have the appropriate module slots for such devices (typical with ER patient monitors). Since my module does not have its own power or data sources it is a slave to the ER monitor (master) plugged into and receives its power and data from the master monitor through the electrode contact pads. This module portability concept and slave-master concept is completely novel and different from the art which either Sellers and Yeager teach and, since neither the examiner or Sellers or Yeager perceived these important differences or describes these differences, it would not have been obvious to anyone skilled in the art to teach or describe this novel art. As you can see I have modified my claim 13 to further clarify and distinguish my art. I have also done the same to the text description in the body of the application without introducing any new subject matter to the application.

**As per claim 14:**

The examiner cites Yeager fig 1 and 8 and page 5 lines 18-23 as "disclosing the apparatus of claim 1 wherein the patient module contains an interface wand..... For storage and display."

The examiner cites Yeager page 5 lines 18-23 as disclosing "the interface wand is capable of ..... by non-contact and wireless means." Again, after careful review of the Yeager he does make several vague references to wireless communication in his text, but what is glaringly omitted is Yeager teaching ANY means at all of how to achieve this wireless communication. Yeager is very specific in noting EPROM, DRAM and Dallas 19xx semiconductor devices for his data cell. As of the writing of his patent and as of this current date none of these store chip technologies has ANY wireless communication capabilities at all, and of particular difficulty, if not impossible, would be a carrier signal method of transmitting and receiving data from said devices. Yeager also omits and fails to teach and art at all on how his probe 26 can transmit and receive data to the data cell. Given Yeager's deficiencies in the data cell described herein, it would be impossible for Yeager's probe to provide for wireless transmission of data to such a data cell. My art is very specific in teaching wireless means, via inductance and Radio Frequency means, of sending and receiving data to the storage device and well as sending electrical power to said device to avoid the weight, bulk and significant other problems associated with having a battery in the storage device. I also have a detailed description of my Interface wand which specifically teaches the wireless data transmission. In addition, please reference my arguments on this wireless issue in claim 1 above. In addition, Yeager fails to adequately describe the art of his probe 26. What is this probe? How does it work? What art and method transmits and receives data to and from the data cell? How is non-contact wireless transmission of data accomplished? What is the probe comprised of? There is no detailed description of the probe or a figure of it in Yeager's patent.

It is my opinion that the Yeager patent is completely deficient in teaching both the wireless art of the data cell and the wireless art of the probe 26 and I am very surprised the International examiner let his patent issue with such deficiencies.

In addition, the Yeager art fails to teach how the data cell 24. Which works via the wand and in wireless fashion, can transmit and receive data from the wireless wand. Therefore, the Yeager are is entirely deficient in teaching any of the wireless art which he so casually mentions.

In addition, after careful review of fig 1 and figs 8 I find no specific description of how the wireless mode is taught by Yeager. It would not have been obvious to one skilled in the art to teach the wireless art which I describe in my application.



**As per claim 15:**

The examiner cites Yeager fig 7A and 7B and page 5, lines 2-14 as "a system contains software and logic for the seamless storage, prioritization....." After examining these citations I see nothing unique or novel about Yeager's approach in organizing these records. This is a woefully inadequate means of providing for medical information in an emergency. As previously described emergency medicine is a very specialized and niche discipline of medicine which requires very specific clinical information, medical tests, prior medical records and other patient information in order to accurately and efficiently diagnose and treat people in a medical emergency. My art is far superior and unique to the Yeager art because I specifically teach a novel mathematical method for combining clinical risk factors, statistical probability factors for proper medical treatment and outcome which provide an accurate and scientific means of organizing medical records in a priority manner for the optimal treatment of patients in medical emergencies. My art has been devised with the advise of some of the leading Director of Emergency Medicine in the US including Dr. Michael Carius, President of the American College of Emergency Physicians. My art methodizes the complex cognitive approach which emergency physicians must take each time they encounter a medical emergency with perhaps some prior medical records present. A physician must cognitively and somewhat subjectively weight the risk factors of pre-existing conditions, along with the prior medical records which may be present, and weight these factors against the time constraints of performing additional tests in the ER verses rapid treatment bases on the statistical probability of a positive patient outcome. My art unique in this regard and no one (Yeager or other citations included) has ever combined these risk factors and medical records into a means of organizing and prioritizing medical data for emergency medical treatment. Please reference figure 8 of my application in regard to the organization of the records and its description in the text. I would also point out to the examiner that I have modified the software sub-claim of claim 1 to further clarify the organization of the medical data as part of my art.

The examiner cites Yeager figures 7A and 7B as "software for digitizing, organizing and displaying critical patient information in page format....." Again, based on the arguments presented above, my approach to organizing medical records based on establishing a priority by novel risk weighing factor of pre-existing conditions, time lapse to treatment, clinical risk factors and other factors, is much more effective and objective as a means of providing ER physicians and other treating medical personnel with an objective and rapid means of making complex treatment decisions (minutes and seconds count in ER treatment and could be the difference between life and death). Again, if the examiner references my figures 4, 7 and 8 and their detailed descriptions I am confident that he will conclude that my approach is novel and superior to the Yeager approach, as well as the other examiner citations. I would also point out to the examiner that I have modified the software sub-claim of claim 1 to further clarify the organization of the medical data as part of my art.

Again, in terms of software and medical data organization, if one looks at Yeager Table 1 this is an overly simplistic and medically inferior means of organizing patient information for a medical emergency. As one can see, as previously cited by me, the Yeager memory storage approach with the data cell he describes, along with this data organization approach in Table 1 is woefully inadequate for storing any critical baseline clinical tests such as EKG, blood analysis, urine analysis, x-ray, echocardiogram and other tests which require significant memory capacity and could easily save a patient's life in an emergency. The data cell which Yeager describes can only hold about 4000 bits of digital information (including the Dallas 19xx EPROMS and other devices as of this date). The typical digital EKG file takes up a minimum of about 20 kilobytes of data and ER physicians have stated that having a baseline EKG, particularly in the treatment of any person with a pre-existing cardiac condition is THE MOST important piece of medical information for establishing a risk baseline

(cont)

of the patient for treatment options. As one can see from Yeager's Table 1 he makes no attempt to organize the medical data in any specific priority based on risk factors and pre-existing condition which is described in detail in my art, and is far superior to Yeager's approach. In terms of proper memory capacity for a data storage device for this application I would point to my patent 6, 467, 690 and figure 6 of this application which clearly describes a digital storage card capable of holding a minimum of 2000-300 megabytes of digital medical records. This card is capable of storing x-rays, CAT scans and other critical medical tests which could be life saving in an emergency. This art is far superior to Yeager's art. I would also point out to the examiner that I have modified the software sub-claim of claim 1 to further clarify the organization of the medical data as part of my art.

In addition, I would point out to the examiner that I have modified my claim 6 to include reference to figures 7 and 8 which describe in detail the art of my software and the unique organization of the medical records. In general terms Yeager describes storing general medical information that "may be useful in an emergency." The Yeager approach is to basically "shotgun" it and present a physician with a listing medical information and it is up to the physician to sort through the information and determine what is appropriate to use in an emergency where time and accuracy are critical to patient survival. There is nothing unique or novel about Yeager's approach in organizing these records. This is a woefully inadequate means of providing for medical information in an emergency. As previously described emergency medicine is a very specialized and niche discipline of medicine which requires very specific clinical information, medical tests, prior medical records and other patient information in order to accurately and efficiently diagnose and treat people in a medical emergency. My art is far superior and unique to the Yeager art because I specifically teach a novel mathematical method for combining clinical risk factors, statistical probability factors for proper medical treatment and outcome which provide an accurate and scientific means of organizing medical records in a priority manner for the optimal treatment of patients in medical emergencies. My art has been devised with the advice of some of the leading Director of Emergency Medicine in the US including Dr. Michael Carls, President of the American College of Emergency Physicians. My art methodizes the complex cognitive approach which emergency physicians must take each time they encounter a medical emergency with perhaps some prior medical records present. A physician must cognitively and somewhat subjectively weight the risk factors of pre-existing conditions, along with the prior medical records which may be present, and weight these factors against the time constraints of performing additional tests in the ER versus rapid treatment bases on the statistical probability of a positive patient outcome. My art is unique in this regard and no one (Yeager or other citations included) has ever combined these risk factors and medical records into a means of organizing and prioritizing medical data for emergency medical treatment. Please reference figure 8 of my application in regard to the organization of the records and its description in the text.

In addition, after careful review of page 5 lines 2-14 I see no specific teaching by Yeager on the "organization of his software and logic for seamless storage, prioritization of readable pages on a display screen."

**As per claim 16:**

The examiner will note that I have added some claims (which were part of the original subject matter of the application) which I inadvertently omitted. I have renumbered the claims and therefore claim 16 is now claim 30 (the start of my method claims).

Again, I would direct the examiner to all of the arguments which I have previously laid forth in this letter regarding how my art is unique, novel, separate and unique from both Yeager and Sellers, and also not obvious in any regards.

All of my previous arguments in regards to Yeager and Seller's apparatus and my apparatus, apply equally to art of my method and the art of Yeager and Seller's method. Namely, my method teaches a unique and novel means of prioritizing and organizing the medical data based on a weighted average of risk factors of the pre-existing conditions of a patient and the availability of clinically significant medical records and data which will effect the outcome of clinical treatment in an emergency. Again, Yeager provides no details at all on how to accomplish wireless transmission of data either from the data cell 24 or the data probe 26. Yeager's art is deficient in this regard and my art specifically teaches unique methods of wireless transmission of data to and from both my storage device and my interface wand, and my art would not have been obvious to anyone skilled in the art.

The method of my device is far superior to both Yeager, Sellers, and all the other previously cited by the examiner because I teach using various high capacity portable storage devices ( Reeves 6,467,690, 09/578,664, 09/597,107) which can truly store medically significant amounts of medical data which are crucial in a medical emergency.

I refer the examiner to the detailed explanations of how my art and apparatus (same arguments for the method claims) uses the portable storage devices, hand held devices and base unit as an organized system for the seamless prioritization, transmission and display of crucial medical data and information.

Again, I refer the examiner to all of the arguments I have previously presented in this report in regards to how my art is significantly superior and distinctive from the prior art which the examiner had cited.

#### As per claim 17:

I would point out to the examiner that my old claim 17 is now claim 31

I would refer the examiner back to all the previous arguments I have used in this report for Explaining how my art is far superior to Yeager, Sellers and the other art cited in terms of organizing and prioritizing medically significant and clinically significant medical data for use in an emergency. I specifically teach a method of using a weighted average of the risk factors to the patient of their pre-existing conditions coupled with the probability of the likely medical benefit of having access to medical data to treat said pre-existing condition and ranking said records based on highest to lowest risk factors.

After careful review of the Yeager abstract I would respectfully disagree with some of the examiners observations. Specifically, the Yeager abstract makes no mention at all, from either a conceptual or literal perspective, of "retrieving" or "organizing" or "other vital personal information." I simply do not see how the examiner can infer such items from the Yeager abstract and it is my respectful opinion that the examiner is reading more into the Yeager abstract than really exists. The terms "organizing" and "vital personal information" are key points which are specific aspects of my art which are simply not part of the Yeager art. Specifically, I describe in detail how the condensed medical records of my art are organized in a priority fashion based on the severity of the pre-existing medical condition of the user and ranked by weighted average based on their clinical utility in treating a user in a medical situation. In addition, Yeager makes no reference to "other vital personal information" other than medical records. My art specifically includes a color photo ID of a user, living will instructions, organ

(cont)

donor instructions, and other personal non-medical information which could include banking information, credit card information and other personal and family related information which may aid in a medical or other type of emergency. Yeager does use the word "worn" in his abstract and specifically limits his art to such worn devices. My art is not specifically limited to worn devices and I specifically describe high capacity storage cards and data storage disks (my figure 6) which can be either carried in the pocket or wallet and are not specifically worn. Based on the scope of this subject matter in my art I have modified both the title of my invention and abstract to reflect the broader scope of my art in terms of "personal data storage devices" and specifically "worn" devices.

From a practical point of view Yeager's abstract, and the body of his invention, describe storing a person's "medical records." Yeager describes storing the complete medical records and archives of a person on this data cell device. This is simply an impractical concept, particularly in the context of a medical emergency as described by Yeager. Emergency medicine is a highly specialized form of medicine and presenting the complete archives of a person's medical history would have little or no practical medical value. Emergency medicine, and its utilization of prior medical data of a patient, specifically relies on a focused organization of medical data based on a ranking (priority) of the severity of a pre-existing condition and the clinical utility of the medical data in treating the pre-existing medical condition during said emergency. No invention or prior art, including Yeager or Sellers or other, describes the art in my application for prioritizing and ranking said medical data by weighted average in order of severity of pre-existing condition. This "organization" as described by my art is a superior art and technology which would not have been obvious to one skilled in the art and specifically has not been taught by any of the prior art or the examiner.

In addition, it would not have been obvious to a person skilled in the art to have included a high capacity data storage card or a data disk as described in my 6,467,690 patent which issued on 10/22/02. I also have art which is related to this application which is further described in 09/578,664 and 09/597,107 which have been previously noted and referenced in the reorganized body of my application (enclosed).

After examining these Yeager citations I see no specific reference at all to Yeager using the term "medically significant" or "significant." In general terms Yeager describes storing general medical information which "may be useful in an emergency." The Yeager approach is to basically "shotgun" it and present a physician with a listing of medical information and it is up to the physician to sort through the information and determine what is appropriate to use in an emergency where time and accuracy are critical to patient survival. There is nothing unique or novel about Yeager's approach in organizing these records. This is a woefully inadequate means of providing for medical information in an emergency. As previously described emergency medicine is a very specialized and niche discipline of medicine which requires very specific clinical information, medical tests, prior medical records and other patient information in order to accurately and efficiently diagnose and treat people in a medical emergency. My art is far superior and unique to the Yeager art because I specifically teach a novel mathematical method for combining clinical risk factors, statistical probability factors for proper medical treatment and outcome which provide an accurate and scientific means of organizing medical records in a priority manner for the optimal treatment of patients in medical emergencies. My art has been devised with the advice of some of the leading Directors of Emergency Medicine in the US including Dr. Michael Carius, President of the American College of Emergency Physicians. My art methodizes the complex cognitive approach which emergency physicians must take each time they encounter a medical emergency with perhaps some prior medical records present. A physician must cognitively and somewhat subjectively weight the risk factors of pre-existing conditions, along with the

(cont)

prior medical records which may be present, and weight these factors against the time constraints of performing additional tests in the ER versus rapid treatment bases on the statistical probability of a positive patient outcome. My art unique in this regard and no one (Yeager or other citations included) has ever combined these risk factors and medical records into a means of organizing and prioritizing medical data for emergency medical treatment. Please reference figure 8 of my application in regard to the organization of the records and its description in the text.

Again, based on the arguments presented above, my approach to organizing medical records based on establishing a priority by novel risk weighing factor of pre-existing conditions, time lapse to treatment, clinical risk factors and other factors, is much more effective and objective as a means of providing ER physicians and other treating medical personnel with an objective and rapid means of making complex treatment decisions (minutes and seconds count in ER treatment and could be the difference between life and death). Again, if the examiner references my figures 4, 7 and 8 and their detailed descriptions I am confident that he will conclude that my approach is novel and superior to the Yeager approach, as well as the other examiner citations. I would also point out to the examiner that I have modified the software sub-claim of claim 1 to further clarify the organization of the medical data as part of my art.

Again, in terms of software and medical data organization, if one looks at Yeager Table 1 this is an overly simplistic and medically inferior means of organizing patient information for a medical emergency. As one can see, as previously cited by me, the Yeager memory storage approach with the data cell he describes, along with this data organization approach in Table 1 is woefully inadequate for storing any critical baseline clinical tests such as EKG, blood analysis, urine analysis, x-ray, echocardiogram and other tests which require significant memory capacity and could easily save a patient's life in an emergency. The data cell which Yeager describes can only hold about 4000 bits of digital information (including the Dallas 19xx EPROMS and other devices as of this date). The typical digital EKG file takes up a minimum of about 20 kilobytes of data and ER physicians have stated that having a baseline EKG, particularly in the treatment of any person with a pre-existing cardiac condition is THE MOST important piece of medical information for establishing a risk baseline of the patient for treatment options. As one can see from Yeager's Table 1 he makes no attempt to organize the medical data in any specific priority based on risk factors and pre-existing condition which is described in detail in my art, and is far superior to Yeager's approach. In terms of proper memory capacity for a data storage device for this application I would point to my patent 6,467,690 and figure 6 of this application which clearly describes a digital storage card capable of holding a minimum of 2000-300 megabytes of digital medical records. This card is capable of storing x-rays, CAT scans and other critical medical tests which could be life saving in an emergency. This art is far superior to Yeager's art. I would also point out to the examiner that I have modified the software sub-claim of claim 1 to further clarify the organization of the medical data as part of my art.

**As per claim 18:**

Please note that claim 18 is now renumbered as claim 32

I would refer the examiner back to all of my previous arguments in regards to Yeager and his use of the term "wireless" when referring to his probe 26, his data cell 24 and his field unit. No where within the entire Yeager patent does he teach or describe any method whatsoever for how to transmit data in a wireless manner to and from his data cell, to and from his probe 26, and to and from his portable

(cont)

field unit. Quite frankly I don't think Yeager had any idea how to do this and his patent is extremely deficient in this regard. My patent teaches specific and detailed methods of how to wirelessly transmit data to and from my storage devices (figs 10,9 and 6) , to and from my interface wand and to and from my portable field unit. In addition, my art and methods in this regard would not have been obvious to one skilled in the art.

**As per claim 19:**

Please note that claim 19 is now renumbered as claim 33.

Again, I would refer the examiner to all of the previous detailed arguments I have presented in regards to my unique and superior methods for organizing, prioritizing and displaying medical data and information for emergency use. As I have previously described Yeager does not teach any specific method at all for the criterion of how to organize , prioritize and display medical records. Yeager's approach is a disorganized "shotgun" approach which is entirely inadequate in a medical emergency where seconds count. In Yeager's art a physician would have to spend a significant amount of critical time blindly searching for medical data and a records of a users pre-existing medical conditions. Yeager also does not teach any method how to rank and/or prioritize any such records or data.

I specifically teach a detailed method of how to rank, prioritize, organize and display the medical data and information in a logical and methodical manner which is based on sound and proven medical risk indicators and clinical data.

**As per claim 20:**

Please note that claim 20 is now claim 34

Again, I would refer the examiner to all of the previous detailed arguments I have presented in regards to Yeager's deficiencies in not teaching any method or art at all for the wireless transmission of data from his data cell to his probe and from his probe to his portable unit to the hand held unit and to his base unit. It is not fair to assume that Yeager has adequate art or technology to make this wireless transfer of data especially in light of the fact that Yeager has specifically identified EPROM, DRAM and Dallas Semiconductor devices which have no capability at all to transfer data in a wireless manner. I am very specific in teaching numerous methods and arts to transfer data in a wireless manner from my storage devices to my interface wand, and from my interface wand to my hand held device and from my hand held device to my base unit. I would refer the examine to my detailed descriptions of methods from figures 6,9, and 10.

**As per claim 21:**

Please note that claim 21 is now claim 35

The examiner acknowledges that Yeager does not teach the method of claim 16 (now claim 30) and specifically transmitting data from Yeager's data cell to a multi use patient monitor. If the examiner acknowledges that Yeager does not teach this art then why does he reject my claim? The examiner offers no specific reason why he is rejecting my claim and again cites Yeager as "teaching" a wireless means of transmitting data from his data cell 24 . Again, Yeager is entirely deficient in not teaching any method at all in electronically transmitting data from his data cell and the semiconductor devices

(cont)

Yeager cites (EPROM, DRAM, Dallas). I specifically teach numerous methods to transfer data in a wireless manner from my storage devices to my interface wand.

**As per claim 22:**

**Please note that claim 22 is now claim 36**

Again, the examiner cites Yeager as teaching a method of organizing, prioritizing and displaying Medical records in light of claim 21 (now claim 35) and the wireless issue above. Again Yeager is teaching an inferior method of organizing and displaying medical records and Yeager does not teach any method at all, as previously noted, of prioritizing the medical records. I teach a far superior and logical method of organizing, prioritizing and displaying medical records and data based on a weighed average of medical risk factors of a person's pre-existing medical conditions, and records organized and prioritized from highest risk to lowest risk for use in a medical emergency. Neither Yeager nor any of the other prior art cited by the examiner teaches my far superior method of organizing, prioritizing and displaying said medical records and data for emergency use.

**As per claim 23:**

**Please note that claim 23 is now claim 37**

Again, I would refer the examiner to all of the previous detailed arguments I have presented in regards to Yeager's deficiencies in not teaching any method or art at all for the wireless transmission of data from his data cell to his probe and from his probe to his portable unit to the hand held unit and to his base unit. It is not fair to assume that Yeager has adequate art or technology to make this wireless transfer of data especially in light of the fact that Yeager has specifically identified EPROM, DRAM and Dallas Semiconductor devices which have no capability at all to transfer data in a wireless manner. I am very specific in teaching numerous methods and arts to transfer data in a wireless manner from my storage devices to my interface wand, and from my interface wand to my hand held device and from my hand held device to my base unit. I would refer the examine to my detailed descriptions of methods from figures 6,9, and 10.

The method which Yeager is describing for wireless transmission from his data cell storage devices to His probe is not technically feasible.

**As to claim 24:**

**Please note that claim 24 is now claim 38**

Again, the examiner cites Yeager as teaching a method of organizing, prioritizing and displaying Medical records in light of claim 21 (now claim 35) and the wireless issue above. Again Yeager is teaching an inferior method of organizing and displaying medical records and Yeager does not teach any method at all, as previously noted, of prioritizing the medical records. I teach a far superior and logical method of organizing, prioritizing and displaying medical records and data based on a weighed average of medical risk factors of a person's pre-existing medical conditions, and records organized and prioritized from highest risk to lowest risk for use in a medical emergency. Neither Yeager nor any of the other prior art cited by the examiner teaches my far superior method of organizing, prioritizing and displaying said medical records and data for emergency use.



**As to claim 25:**

Please note that claim 25 is now claim 39

The examiner is citing Yeager page 13, lines 17-31 as "disclosing a method ... including means of prioritizing medical records in a medically significant fashion so most critical life saving information, tailored.... is displayed first." After examining this Yeager citation I see no language or art which would indicate what the examiner is quoting in any way shape or form. I feel strongly the examiner is subjectively interpreting Yeager and attempting to project my superior art into Yeager's art. Yeager does not teach prioritizing records my medically significant factors nor does he teach tailoring the information to suit the individual. Yeager certainly does not teach my superior method of organizing medical information by medical risk factor of pre-existing conditions and the organization and display critical medical tests such as blood work, urine work, EKG, x-rays CAT scans, MRI's, etc.. Yeager's Data cell simply does not have the capacity to store such medical tests and my storage devices do have the capacity as evidenced by my 6, 467,690 patent.

Yeager's organization of current medications and allergies in a medical emergency is entirely inadequate, medically unsound, and does not even come close to representing and of the crucial and life saving medical information which emergency personnel would need for adequate treatment and to save a person's life in a medical emergency. My methods and art are far superior to Yeager's

**As to claim 26:**

Please note that claim 26 is now claim 40

The examiner cites Yeager as disclosing a method of "... allow for a common software for storing records within the bodily worn device, compatible with the field unit and base unit..." The examiner notes that Yeager specifically mentions Windows as the operating system. I would point out to the examiner that it is commonly known to anyone skilled in the electronics industry that EPROMS, DRAMS, and Dallas semiconductor storage devices (which Yeager discloses as his data storage device) to not operate on any Windows based software platform and none of these devices is technically capable of running on Windows, supporting Windows or capable of having adequate storage capacity to store Windows. Therefore it is not at all technically feasible to apply the art which Yeager is describing and the Yeager art is entirely deficient in this regard. Therefore, it would not be technically feasible for Yeager to have a data cell, portable unit and base unit all running on a Windows platform for a common software language.

My methods and art, including my high capacity storage devices ( 6,497, 690) are perfectly capable of storing and supporting a Windows based software platform.

**As to claim 27:**

Please note that claim 27 is now claim 41

The examiner cites Yeager fig 1 units 26 and 28, and page 5 lines 14-18 as disclosing a method of "updating the medical records within a bodily worn device via wireless means." After careful review of the Yeager citations I find no specific reference to updating the records or data in his data cell via wireless means. In addition, I would refer the examiner to all of the previous detailed arguments I have presented in regards to Yeager's deficiencies in not teaching any method or art at all for the wireless transmission of data from his data cell to his probe and from his probe to his portable unit to the hand held unit and to his base unit. It is not fair to assume that Yeager has adequate art or technology to make this wireless transfer of data especially in light of the fact that Yeager has



(cont)

specifically identified EPROM, DRAM and Dallas Semiconductor devices which have no capability at all to transfer data in a wireless manner. I am very specific in teaching numerous methods and arts to transfer data in a wireless manner from my storage devices to my interface wand, and from my interface wand to my hand held device and from my hand held device to my base unit. I would refer the examine to my detailed descriptions of methods from figures 6,9, and 10.

In addition Yeager fig 1 units 26 and 28 are the probe and base unit and there are no references within the citations noted by the examiner to suggest that Yeager is teaching any method of wireless transfer of data to and from his data cell for updating medical records or data.

As to claim 28:

Please note that claim 28 is now claim 42

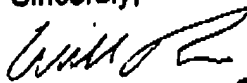
The examiner cites Yeager fig 1 units 26 and 28, and page 5 lines 14-18, page 11 lines 9-12, line 11 as disclosing a method of "updating or re-writing the medical records within a bodily worn device via wireless means." After careful review of the Yeager citations I find no specific reference to updating or re-writing his data or records to his data cell via wireless means. In addition, I would refer the examiner to all of the previous detailed arguments I have presented in regards to Yeager's deficiencies in not teaching any method or art at all for the wireless transmission of data from his data cell to his probe and from his probe to his portable unit to the hand held unit and to his base unit. It is not fair to assume that Yeager has adequate art or technology to make this wireless transfer of data especially in light of the fact that Yeager has specifically identified EPROM, DRAM and Dallas Semiconductor devices which have no capability at all to transfer data in a wireless manner. I am very specific in teaching numerous methods and arts to transfer data in a wireless manner from my storage devices to my interface wand, and from my interface wand to my hand held device and from my hand held device to my base unit. I would refer the examine to my detailed descriptions of methods from figures 6,9, and 10.

In addition Yeager fig 1 units 26 and 28 are the probe and base unit and there are no references within the citations noted by the examiner to suggest that Yeager is teaching any method of wireless transfer of data to and from his data cell for updating medical records or data.

8. The examiner's final comment is to cite other prior art including 6,188,407 and "wearable computers." After careful review of these patents, their abstracts, intended use, and the scope of their applications I find no conflicts or overlaps with my art. In addition my art is superior and more advanced than this art and contains more valid and specific art, and novel technology for providing medical data and information in a medical emergency.

Please call me at 203-288-1588 if you have any questions. As you can see I have reorganized the body of the patent to put it in the standard format required. Enclosed please find revised patent, claims, drawings, and other supporting documents.

Sincerely,

  
William Reeves, GM

**A. TITLE OF INVENTION**

**COMPUTER INSTRUMENTS AND EMERGENCY MONITORING DEVICES  
FOR RETRIEVING AND DISPLAYING STORED MEDICAL RECORDS  
FROM BODILY WORN STORAGE DEVICES**

**RECEIVED**

**JAN 27 2003**

**B. CROSS REFERENCE OF RELATED APPLICATIONS**

**GROUP 3600**

The following applications by inventor William Reeves are related to this application:

US 6,467,690

09/597,107

09/578,664

It is the intent of this inventor that these related applications, coupled with the application herein, shall comprise an overall system for organizing medical records and other data for access in a medical emergency.

**c. STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH**

Not Applicable

**d. COMPACT DISK MATERIALS**

Not Applicable

**e. BACKGROUND OF THE INVENTION**

Simple bodily worn medical bracelets and medallions have been used for many years by individuals with serious medical conditions to alert emergency medical personnel in the event the wearer is stricken and unconscious that the wearer has a serious pre-existing medical condition which requires special medical treatment. Although these simple bracelets and pendants have been useful they lack the space and storage capacity necessary hold critical lifesaving medical information and any electronics to interface with modern patient monitors and or electronics.

Such critical lifesaving information includes: blood type, a description of pre-existing medical conditions, photo ID or other positive identification, EKG scan, Cardiac, Ultrasound scan, present drug usage and interaction cautions, severe drug and other allergic reactions. The invention disclosed herein, and complimentary inventions disclosed by the inventor, teach the design of bodily worn devices which can store large amounts of digital medical records and have those records retrieved in a rapid wireless manner in the event of a medical emergency. The bodily worn devices and art disclosed herein can also be linked to the Internet via unique serial number codes on the BWD so that medical records can also be stored on a remote central website and accessed in remote locations and updated from remote locations, in the event of a medical emergency or routine physician office visit. The Bodily Worn Device (BWD) can also be embodied into a digital storage card and/or medical computer disk which is disclosed in another invention by this inventor. Also, other key medical and personal information which can be stored into the bodily worn digital devices include Organ Donor Instructions and Living Will instructions which have become very common place and vital to the medical community as well as the individual. Integral to the use of the Bodily worn digital storage devices (BWD) are the inventions disclosed herein which are medical monitors, personal computers, portable display devices and interface electronics used to organize medical records, as an option- encrypt the records for security, transmit the records through interface electronics and "burn in" the data on computer chips and other suitable storage media located within and part of the BWD. There are several embodiments of the invention disclosed herein which will most likely be the most convenient and usable commercial versions of the invention. These include: 1. a portable field unit which will include a display screen, microcomputer, interface wand, software, and a means of transmitting data back to a base unit in an emergency 2. an interface module which, in lieu of an entire new patient monitor, can be added to a module slot in an existing patient monitor and add the capability of accepting data from the Interface Wand and BWD without adding a lot of additional cost to the health care system, 3. a more substantial Base Unit which would be most likely a PC based system and include software for organizing and editing medical data and records, as an option- encrypting those records for confidentiality and security, and sending those records

page 3

cont.

directly through the Interface Wand to be "burned in" and stored within the BWD in digital storage media such as a computer chip. Although there are many "canned" and "off the shelf" software packages currently available there is none which would allow for a concise, highly organized and standard format for displaying of emergency medical records. Since time is of the essence and correct treatment and medical intervention is often a life or death situation it is essential to have the stored medical records in a highly organized, concise standard format so an EMT can go right to the critical information, assess the best medical treatment options and act accordingly. This highlights the need for unique software to organize the emergency medical records and information into concise and edited format for easy use and such software is disclosed herein as part of this invention. There has been prior art in the medical industry which, although peripherally related to medical records and computer systems, does not teach the art or devices described herein. Doue in 5,361, 202 teaches a computer system and software specifically for the purpose of managing a patient's stay in a hospital or clinic. Doue makes no mention of organizing or applying any critical emergency medical information, makes no mention of using or interfacing with Bodily Worn Devices or Medical cards and in general Doue's invention in no way completes with the invention disclosed herein. Since the invention disclosed herein is not used in any way, and makes no claims to manage the time frame for a patient's stay in a hospital, these two patents really have nothing more in common than the fact that they use a screen and a microprocessor. Whalen in 5,327,341 teaches a computer system and software for managing general medical records and files in a hospital and physician office environment. Whalen focuses on the software side of his invention and teaches means of creating headers and organization categories for large amounts of medical information. No where in his invention does Whalen teach organizing Emergency Medical Information for emergency medical treatment which is created for the purpose of storage on Bodily Worn and/ or Digital Storage cards or disks. No where does Whalen teach any of the Interface Wand, interface module and data transmission features of the devices disclosed in this invention. The main claims of the Whalen patent deal with managing and updating an individual's medical records in a routine office based setting using key words, hybrid data fields, etc., which this invention is not claiming and for applications this invention has

cont.

page 4

no intention of addressing. Eberhardt in 5, 659, 741 teaches a medical history computer system for recording medical histories aimed at organizing very large amounts of medical data for organizations such as the federal government for keeping track of medicare and medicaid and/or for large insurance companies. This differs from the invention disclosed in that the emergency medical data described herein is not stored in a central computer but is organized and stored on Bodily Worn devices. The inventions described herein are patient monitors and interface hardware specifically aimed at retrieving and displaying the stored emergency medical data. Eberhardt fails to teach any of the patient monitors, modules or interface electronic hardware necessary to make the retrieval of emergency medical data a practical device. Although Eberhardt mentions cards or disks to carry medical records he fails to teach any type of practical card or disk fails to teach how such a card or disk would be interfaced with a practical computer system or its components. An integral part of Eberhardt's inventions, which is not required by the invention disclosed herein, is the ability to sort for medical information and/or data by key word, phrase, etc.. This is not necessary for the invention described herein in terms of its software and is outside of the scope of this invention. Yeager PCT -WO 97/22297 teaches a system for storing and retrieving medical records from either EPROM, DRAM, or Dallas semiconductor storage data cells. Yeager's art has many significant drawbacks which make it inferior to the art disclosed herein as well as severely limit its practical applications and ability to provide useful medical information in a medical emergency. Yeager's severe drawbacks and limitations include his choice of semiconductor storage devices for his data cell including DRAM, EPROM and Dallas Semiconductor devices. The maximum storage capacity of any of these devices is approximately 4,000 bits of digital information which is entirely inadequate for storing any meaningful medical data. The storage devices disclosed in the art herein and in Reeves 6,467,690 can hold approximately 200 megabytes- 300 megabytes of digital data which makes storing meaningful medical data and information possible. Yeager also fails to teach any proper means of prioritizing or organizing the medical records which would take into account risk factors of pre-existing medical conditions, availability of medical tests such as EKG, x-rays, CAT scans, blood work, urine analysis, MRI, etc..., and medical prognosis and treatment risk factors based on statistical probability. Yeager is basically presenting medical data on a raw "shotgun" basis and it is up to the ER personnel to sort through this

page 5

cont.

data on a time consuming basis, and make educated guesses about treatment in a critical, life threatening situation. My art herein presents a unique, novel, and scientifically sound method of organizing and prioritizing medical data based on pre-existing risk factors and medical prognosis. Yeager also fails to teach any meaningful or practical means of transmitting data to and from his data cell in a wireless manner. Yeager makes this wireless transfer of data a critical aspect of his invention but fails to teach an art or method to achieve such wireless transfer. The art disclosed herein specifically teaches novel and unique new methods for the wireless transfer of large amounts of digital data to and from the storage devices disclosed herein. Sellers 5,678,562 teaches ambulatory EKG devices commonly referred to as Holter devices. The scope of Sellers application and technology is outside of the scope and application of the technology described herein. Sellers teaches a means of gathering and storing EKG data from an ambulatory EKG device and sending EKG data across telephone lines for analysis. The Sellers art pertains to gathering real time EKG data from a person's body, to detect random and intermittent heart problems, which may not show up on normal physician administered EKG tests done in a physician's office. The art which Sellers teaches is not related to the art described herein and is separate and different from the art described herein.

#### **f. SUMMARY OF THE INVENTION**

The invention disclosed herein has several different embodiments described in the Background narrative. What all of these embodiments have in common is:

- interface hardware and electronics, embodied in the form of the Interface Wand and module input/output card, for electrically powering and retrieving the data from the bodily worn devices in a wireless, non-contact fashion
- software which is compatible with the software and organization platform of the Bodily Worn devices for retrieving, organizing and displaying the stored records in rapid format for emergency situations.

page 6

cont.

- a screen display which could include an LCD screen, video screen, cathode ray tube, or computer screen for displaying the records in emergency situations.

- a means of periodically updating the records stored on the Bodily Worn devices by interfacing the Bodily Worn device with the monitors, either using the Interface wand and a direct connection to a monitor or via the wand and an interface box which could be used to modem information into the Bodily Worn device from a remote location. A means of linking the BWD to a central Internet website via a unique BWD serial number code for remote accessing and updating medical records and data by physicians and ER staff for treating patient in a medical emergency or for updating patient records on a routine, non emergency basis.

- a means, through unique software encryption and recognition techniques, to interface with unique smart cards and/or unique computer disks which have permanently imbedded software security identification markers. This type of a marker and recognition system allows for only authorized types of disks and card, which have the unique embedded digital markers, to be used and recognized by the system software for security and anti fraud purposes. The alternative, which is an embodiment of this invention, is to have an open architecture software.

- smart software and two way data transmission between the interface hardware and the Bodily Worn devices and cards and disks. This smart software allows for recognition of encrypted security markers to eliminate unauthorized entry to the devices and well as for anti fraud purposes during data transmission.

- electronic cases and enclosures which make the devices herein either rugged and portable for field use and/or military use, enclosures and electronic covers for the module. Interface to safely add the module and upgrade to an existing patient monitor, or an enclosure for making the devices desk top and fairly stationary for use in an office environment.

## **h. DETAILED DESCRIPTION OF THE INVENTION**

### **Reference Figure 1**

Figure 1 represents a flow chart of how the integral hardware components of the system would interface. Either the portable field unit, patient monitor module or base unit monitor can send or retrieve data from the Bodily Worn Devices (BWD) via the Interface Wand. In turn, either the Portable Field Unit or the Patient Monitor Module can also send data to and from the Base Unit Monitor via either telephone lines, wireless AM or FM transmission or any other appropriate transmission means. The interface wand is an integral part of the system for sending and retrieving data from the BWD. The Interface Wand has a means of simultaneously sending electrical power to the BWD via wireless inductance means while at the same time sending and retrieving data from the BWD via either optical or capacitance data transmission. The detailed disclosure of the art of the Interface Wand and BWD are covered in another US patent filing by this inventor (reference US 09/597,107). As previously described the portable field unit and the Base unit Monitor both have the electronics to receive and transmit data to and from the Interface Wand, to display medical data on a screen for Emergency Medical treatment, and to send the data wireless or over telephone lines to other stations. The patient monitor module, which is an electronic card which fits into an existing patient monitor, is described in more detail in figure 5. Common software allows the devices disclosed herein to communicate, send and retrieve data and encrypt data in secure means for confidentiality and security. One important feature of the system is a link between the bodily worn device and a central Internet based website 33, with the central website 33 being also linked to the base unit and master patient records database. The Bodily worn device is linked to the central website 33 via a unique serial number code on the BWD which enables a user to log onto the central website and access patient records in a secure and confidential manner from a remote location, particularly in a medical emergency. In addition, a user may also log onto the central website 33 from a remote location to input and update user/patient records. The updated records are then routed to the systems central patient data storage database to update the master records.



**Reference Figure 2**

Figure 2 shows a schematic of the software and its flow in terms of data transmission through the various pieces of hardware in the system. Two way data transmission is important through each piece of hardware to allow for medical data and records to be both sent and retrieved through the Interface Wand and into and out of the BWD. As shown in figure 4 Emergency Medical Records are organized by the software into pages or files with discrete information organized in sections or blocks to create a standard page. This standard page is important in that in the event of medical emergency time is critical and if a standard page is created for EMT's and technicians then they know exactly where to look to get critical life saving information without searching. The software is organized as such so that Emergency Medical records are created for a patient either from the Base Unit, Portable Field Unit or Ambulatory Patient Monitor; but most preferably in the Base Unit. The Patient files are encrypted to provide for security during transmission over telephone and data lines. The software is organized as such so the patient files are transferred through the Interface Unit or Wand into the BWD in file or page format. These patient files are organized through the software in generic ASCII type files so as to be retrievable and readable using standard software packages in conjunction with our unique decryption software. As an alternative and/or enhancement to the encrypting of the medical files security software markers could be written into the medical record files so that only persons with compatible software which can recognize the security markers would be allowed to retrieve and open the medical records stored on BWD's or on electronic cards or disks. Again, an important and novel feature of the system is a central Internet website 23 which is linked to all of the hardware components of the system via either wireless or hard wired means. The website 23 is linked to the BWD 27 via a unique serial number code which identifies each patient user and links them to their medical records which are also stored on the website 23 in a confidential manner. In an emergency, or under routine medical scenarios, patient medical records can be accessed from remote locations via the website 23 by viewing the unique serial number of the patient/user which is stamped on a visible spot on the exterior of the BWD. Therefore, if a physician, ER or other emergency personnel do not have access to the interface wand 26 they can still access patient records by viewing the unique serial number on the back of the BWD, accessing the central website 23, inputting the unique serial number code into the software system and calling up the

page 9

cont.

patient records stored within the website 23. The website 23 is also linked to the base unit 24 for periodic updating and downloading of patient records via the Internet. There is also a wireless link between the handheld unit 25 which allows emergency personnel to access patient records via the central website 23 using the unique serial number on the exterior of the BWD.

### Reference figure 3

Figure 3 shows one variation of how all of the components of the system work including the Bodily Worn Device 21, Interface Wand, Portable field unit 19, base unit 18 and controlling software. When the wearer of the BWD is stricken with any illness or is in an accident, etc. an EMT, paramedic, military corpsman, etc. can access the critical medical data using the portable field unit, assess the stricken persons overall condition using the pre-existing medical history and data in the BWD, and rapidly determine the best course of medical treatment, which could prove life saving. The portable field unit has the ability to transmit medical data and treatment options to the base unit and visa versa, so hospital based medical personnel can communicate directly with the field paramedic. An integral part of this invention is the design and inter-related working mechanism between the BWD, storage cards and storage disks. This is expanded on in figure 6 of this invention. In addition, when the wearer of a BWD is stricken, emergency personnel may also access patient medical records via the Internet and the central website 17 which is also linked to the BWD 21 via a unique patient user serial number which is affixed to the exterior of the BWD 21. Emergency medical personnel can access the central website 17 via the portable field unit 19 or any other suitable device with a screen and Internet access, and by inputting the unique patient serial number from the back of the BWD into the central website they may access patient medical records stored on said website 17. Patients, physicians, pharmacists and other authorized parties may also access patient records via the central website 17 to periodically update patient records and prescriptions, again, by using the unique serial number affixed to the BWD. Additional system security can be added by restricting the system to only licensed medical personnel and patients and

page 10

cont.

requiring medical personnel to have a separate password code, in addition to the unique serial number on the BWD, to access patient records.

#### Reference figure 4

Figure 4 shows one preferred embodiment of the software configuration for the Emergency Medical Record data page organization. The medical data can either be in file or page format with discrete data fields or blocks of a page devoted to specific information so as to create a standard and easily recognizable format in an emergency situation. Menus or point and click software commands can be set up so as to allow the user to rapidly scroll through pages to find information. Figures 7 and 8 and 11 should also be referenced when viewing this figure 4. As previously described a novel method is described herein for assessing the risk factors of a patient/users pre-existing medical conditions, assigning a numerical risk factor to said conditions, assessing the availability of medical records and tests pertaining to said pre-existing condition and assigning a numerical risk factor to said records availability, assessing the prognosis of emergency medical treatment and assigning numerical risk factor, combining said risk factors and determining a weighted priority organization to the medical records and tests based on the highest risk factors having highest priority and the lowest risk factors having lowest priority.

#### Reference Figure 5

Figure 5 shows one preferred embodiment the hardware module which would be used in conjunction with an existing patient monitor in an ambulance, emergency room, etc. The plug in module consists of a face plate with controls, switches etc., for on/off power, data transmission indicator lights, power indicator light and any other appropriate controls and indicator lights. An I/O type printed circuit card is mounted to the face plate and all electronic components and circuitry are mounted to the pc board. The electronic circuitry to supply power to the board, as well the circuitry which routes the data signals through the card, are routed to electronic contact pads or fingers as they are known in the industry.

The pads are either silver or gold plated and allow the pc board to be plugged into the mating slot in the patient monitor so as to accept electrical power from the patient monitor and allow medical records and data to be transmitted and received through the pc board and its connecting pads. As previously described the data cable connects the Interface wand to the front panel of the module. The cable allows data to be transmitted from and sent to the Bodily worn devices using either fiber optic, serial or parallel two way data transmission. The intent of the novel configuration of this interface module is to allow the interface module to be a portable "plug in module" which would be a slave to an existing medical patient monitor which may be found in a typical emergency room. The term slave is used to indicate that the interface module 15 obtains its electrical power from the patient monitor to which it is plugged into; also the interface module relies on the existing patient monitor to have a display screen so that patient records which are obtained via the BWD are routed through the interface module 15 and displayed on the display screen of the patient monitor. This slave-master arrangement acts to save cost by eliminating the need for stand alone electronics and display screen in the interface module, allows emergency rooms to save space, and also allows the interface module technology to be portable and moved from one patient monitor to another in an easy and convenient manner. The software within the interface module 15 would also be compatible with the software of the patient monitor so as to allow for seamless transfer and display of patient data and records.

#### Reference Figure 6

Figure 6 shows one of numerous preferred embodiments of the interface wand and BWD interface, with their corresponding mechanical alignments and wireless data transmission means. As previously mentioned the design and working mechanism of the Interface wand, as it relates to Bodily Worn Device 2 or Card or Disk 3,7, is critical. The two devices and their working mechanisms as described herein are unique and novel. This inventor has also written and submitted a separate patent on the Digital Card and Disk and mechanisms to read and transmit data. Figure 6 shows three typical embodiments of this invention and this is not to say that more embodiments do not exist. The interface wand is designed in Embodiment a) to include a housing, electrical power pads 9 to supply power to the BWD via inductance or other non-contact means, data transmission and retrieval capacitance

cont.

pads to allow bi-directional flow of digital data in a non-contact manner, a means of aligning the wand and BWD so as to make positive mechanical alignment between the power and data pads. Embodiment b) shows an alternative design of the Wand whereby a case or slot enclosure will allow either the BWD, a card or disk 3 to be inserted into the slot. The power pads and data transmission pads are mounted on the interior wall of the enclosure 4 so as to provide protection in the event the wand is dropped or hit. The slot enclosure and BWD, card, disk are designed so the electrical power pads and data pads make proper alignment when the BWD is inserted and hits a mechanical stop in the slot. Embodiment c) shows a wand 6 with a mechanical slot for insertion of a storage disk or card 7. In this embodiment only an optical read/write pad is required. Since the digital data is stored on an optical film or polymer on the surface of the disk or card, in a similar manner as a compact disk, neither the wand nor disk require any power to retrieve the digital information from the disk. It should be noted that power is required to be sent to the optical scanner in the wand so as to power its operation. The bi-directional reading and writing of data to and from the disk or card can be accomplished with a plurality of optical scanner / writer pads mounted to the inside of the wand. Please also refer to figures 9 and 10 for a detailed description of the novel art disclosed herein for the wireless transmission of data and electrical power to and from the BWD and storage devices and the other hardware components of the system.

#### Figure 7

Figure 7 shows one of numerous preferred embodiments of the software organization, logic and data flow of the system. The software organization, logic, and data flow as described in figure 7 are also a method in the broad sense of this patent application. The system is defined as all of the hardware components (bodily worn device and data storage devices, interface wand, hand held unit, patient module, and base unit) and the software which acts as a common language platform for medical records and data to be seamlessly transferred to and from all the hardware devices within the system. The first step of the software organization, logic and data flow is the creation of a new patient profile 33 which is the step

cont.

whereby either a patient/ user or their physician enter the medical data, clinical records, EKG, x-rays, prescriptions and other vital information (which is determined by accessing the patients pre-existing medical conditions, risk factors and the need for accessing said data in an emergency) into the system software via a prearranged data page with data fields. The system software automatically assigns the patient user file with a unique security ID code 34 which is embedded into the patient's data file as a digital watermark. This security ID allows all of the various hardware components of the system to recognize the patient data file as an authentic and valid patient file for security, to avoid tampering or hacking, and to ensure the medical integrity of said data. Step 35 involves the unique process described herein of prioritizing and organizing the medical data by a combination of the weighted averages of the risk factors of the pre-existing medical conditions, the availability of current medical data and records, and the statistical probability of a positive medical outcome when the available medical records are applied to emergency medical diagnosis and treatment. As shown in fig 8 the medical data and records are then organized in data fields 36 in page format with the highest risk pre-existing conditions (as determined by the unique risk weighted average) being given highest priority, along with there corresponding medical records and data, on page one, and then lesser medical conditions and there medical data on subsequent pages. The overall purpose of this unique prioritization and records organization is to remove some of the guess work and, at times, faulty cognitive decision making on the part of emergency personnel and physicians, especially at a critical times such as a medical emergency when minutes and seconds routinely count and when the wrong treatment decision often means serious injury or death, partly induced by emergency personnel. Once the medical data has been prioritized and organized each set of data is assigned a unique digital address code which corresponds to a pre-assigned data field on each digital page. This an important step because assignment of a unique address field enables the software to save a great deal of digital memory space when medical data is sent to the bodily worn device-meaning that instead of sending all of the digital data which comprises both the page formats and the medical data, only the medical data need be sent to the bodily worn storage devices and storage devices. The digital addresses assigned to the data enable the system to retrieve

cont.

the raw medical data from the bodily worn devices, recognize the data's address fields, and route the data to the pre-assigned fields in the pre-arranged data pages. The data can next be automatically encrypted 38 for security and then sent to either directly to the bodily worn device 39 or the data can be encrypted 38 and then sent to the primary patient data base 37 within the system digital archives. The unique process of transmitting data to the bodily worn device 39 in a wireless manner includes several possible modalities including providing a Radio Frequency carrier signal which is produced by the interface wand and digital data is transmitted via the carrier signal to the bodily worn device in asynchronous fashion. Integral to this wireless RF modality is the ability to simultaneously use either inductance means or RF carrier means to wirelessly transmit electrical power to the bodily worn device so as to allow the data to be received, routed and stored in prearranged digital storage space. It should be noted that the bodily worn device 39 contains an RF receiver/transmitter "antenna" which can be in the form of the metal casing protecting the storage device. Additional wireless transmission modalities can include inductance data and power transmission, and short wave high frequency or ultra frequency carrier signals with relatively low power ranges. It should be noted that encrypted data 38 can also be routed to a prearranged system website 42, with prearranged patient data pages, to act as an Internet repository of emergency patient data. This central system website enables medical personnel, in remote locations, to access patient data in a rapid and secure manner via an access pin 43, and provide timely and accurate treatment in a medical emergency (particularly helpful if a patient was traveling to a foreign country). Medical data and medical tests (EKG, x-ray) can be downloaded via the Internet to remote locations for emergency medical treatment. The software system allows for patient data to be updated 44 on a routine basis when a patient's condition or records change, by providing a software update command 44 which in turn generates a patient records retrieval signal 45 which includes the patient's unique security ID code. The primary patient database 37 is searched by ID code and patient files are retrieved, records are updated 46, and then records are returned to the primary database 37.

**Figure 8**

Figure 8 provides another diagram which outlines one of numerous preferred embodiments of the overall system software, data flow, organization, and logic. As in figure 7 the system is defined as all of the various hardware configurations described herein along with the system software. New patient data and records 47 are entered into the overall system software via either the base unit 59 computer terminal, hand held device 58, patient module 60. New patient records can also be entered and updated from remote locations via a computer and Internet link to the systems central website access portal 61. Patient medical test and data which are in hardcopy paper format may be converted to digital format via a unique scanner configuration 48 (which is further described and disclosed in 09/597,107) which embeds a digital security watermark into each patient test and records to ensure its medical authenticity via the physician signature within the document ( which then become a digital physician signature). As previously described (and outlined in figure 10) the patient medical records and tests are analyzed by the system software to assess the risk factors of; pre-existing medical conditions, the availability of accurate and up to date medical tests and records, and the prognosis and risk factors of treatment in a medical emergency. The medical records and tests are then ranked and prioritized 50 by a weighted average numerical risk scale from highest risk to lowest risk. Patient records are then organized in order of risk ranking 51 and then the data is assigned data array address codes so as to link the address codes to pre-arranged data fields in records pages 53. The pages and associated clinical tests (EKG, MRI, X-ray, Blood Work, etc..) are then arranged into priority based on risk ranking 54 from highest risk to lowest risk 55. All pages and data are in software languages which are standardized and compatible with exiting patient monitors and hardware systems 56.

**Figure 9**

Figure 9 represents one of a plurality of preferred embodiments of the wireless transmission of data within the overall system. As in figure 7 the term system is used herein to denote all of the hardware configurations described in this patent and the unique software used as an integral part of the system. The transfer of data and electrical power



cont.

to and from the data storage device (BWD) 60 and the reader interface wand 61 takes place via a unique asynchronous radio frequency wireless modality which is described in detail in figure 10. Both the Interface wand 61 and storage device 60 have a plurality of miniature optical, Inductance and radio frequency transmitters and receivers which allow both data and electrical power to be simultaneously send to and from each device. The reader wand 61 is typically hard wired to the hand held device but may also operate in a wireless fashion by similar operating modality. The handheld device 62 can transmit data to the base unit 63, Interface module 64 and central website 65 via either wireless or hardwired means. As previously described the central website 65 is also a repository and access portable for the same patient medical records which are stored within the BWD 60. All of the system hardware, including the BWD 60, is linked to the website 65 via either wireless or hardwired means and users and emergency personnel are able to access patient records via a unique serial number which is affixed to the exterior of the BWD 60. Additional redundant system passwords would also be required to ensure that only authorized medical providers have access to patients records and data.

#### Figure 10

Figure 10 represents one of a plurality of referred embodiments of the wireless transmission of data and electrical power to and from the bodily worn data storage devices. The same wireless data transmission modality can be used to transmit data from the portable hand held device to the system base unit, patient module and portable hand held device. Interface wand 100 contains a plurality of miniature optical, Inductance, radio frequency transmitter/receivers (102,103,104). The interface wand also include a signal converter 108 which acts to filter, amplify and convert radio frequency and optical signals, routed from the transmitter receivers, into proportional analog or digital signals. Analog to digital converter 109 acts to convert analog data signals to digital format for use within the system software. The wireless data and electrical power transmission to and from the data storage device 101 takes place between the signal transmitters on the interface wand 100 and the

page 17

cont.

receivers 105, 106, 107 within the bodily worn device 101. The preferred modality of wireless transmission of data using either optical or radio frequency signals is an asynchronous pulsed signal modality which transmits discrete packages of digital data to the receivers of the storage device 101. Low power electrical signals are also transmitted via asynchronous pulsed inductance means from the interface wand 100 to the storage device 101. It should be noted that the medical data and records transmitted to the storage device 101 are sent in discrete digital packages so that no A/D converter is required within the storage device 101. The digital data is routed within the storage device 101 to its internal digital storage media (see Reeves 6, 467, 690 and 09, 578,664 for reference).

#### Figure 11

Figure 11 discloses one of numerous preferred embodiments of the novel prioritization and organization of medical records and data disclosed herein. When a new patient is added to the master system database, or when existing patient records are updated, this prioritization, organization and ranking method is employed by the system software. The system identifies all pre-existing medical conditions 1 and separates them into individual pre-existing condition categories. Next, the system assigns a numerical risk factor 2 to each pre-existing condition 1 based on relative risk to a patient in a medical emergency. Additional numerical risk factors 2 are added for patient age, number of drug prescriptions, body weight, and the potential interaction of the pre-existing conditions. Next the system assesses the quality, accuracy and availability of key medical tests, data and patient information 3 which would reduce patient risk in a medical emergency by providing critical information to physicians for treatment and underlying patient physiology. The system assigns additional risk factors 4 when key data is missing, and assigns reductions 4 to risk factors when key data and tests are present. The system then assesses the statistical probability of prognosis in a medical emergency 5 and assigns additional numerical risk factors 6 (which may add or reduce relative risks). The system then compiles the risk factors 7 and assigns priority codes 8 to all of the patient data, information and medical tests based on the highest risk factor being the highest priority code to the lowest risk factor being the lowest priority code 9.

page 18

The system links each pre-existing condition to its corresponding medical test and medical data so as to organize the information for physicians and emergency personnel in a logical and prioritized manner to save the maximum amount of time and provide the highest probability of positive patient outcome in an emergency.

**Claims:**

1. An apparatus for storing , retrieving, organizing, and updating medical records and other vital personal information from bodily worn storage devices, comprising:

a bodily worn storage device, storage card, or storage disk capable of storing high capacity digital medical records and other vital personal emergency information of the user/wearer.

a portable field unit with a unique interface wand capable of retrieving digital patient records and information from the bodily worn device and transmitting said digital information by contact or wireless means in a medical emergency or other type of emergency situation.

a base unit capable of receiving said digital medical records and information and organizing them into readable and medically significant information for emergency medical treatment options

a patient monitor module for interfacing the wireless critical patient information and data with a plurality of existing emergency room patient monitoring models and devices as a add on, plug in device option (makes the module and technology portable from monitor to monitor as a plug in device).

software for digitizing, prioritizing, organizing, displaying said critical patient information in page formats for emergency medical treatment and other applications and usage

software for controlling the organization, prioritization, data flow and logic of the system comprising: the portable field unit, the patient monitoring module, the base unit, the interface wand and bodily worn storage devices.  
Reference figures 7, 8, and 9

a means, through either contact or wireless non-contact, of sending electrical power from the interface wand to the Bodily worn device, storage card or storage disk, while simultaneously sending and receiving digital data to the Bodily worn device, storage card or storage disk.

2 The apparatus of claim 1 wherein the interface wand is capable of capturing said digital medical records by non-contact optical or wireless means. Reference Reeves 6,467,690 and application 09/578,664

3. The apparatus of claim 1 wherein the bodily worn device is capable of transmitting or receiving said digital medical records from the interface wand by non-contact optical or wireless means.
4. The apparatus of claim 1 wherein the portable field unit is capable of receiving, storing and displaying, in a unique weighted average priority, said medical records on a lighted display screen via the interface wand.
5. The apparatus of claim 1 wherein the portable field unit is capable of wireless transmission of the said digital medical records to said base unit, using the Internet, e-mail or other appropriate digital communications means
6. The apparatus of claim 1 wherein the portable field unit is programmed with software to allow for the organization and display of said digital medical data in a unique weighted average priority manner Reference figure 7 and 8 and said descriptions.
7. The apparatus of claim 1 wherein the interface wand is capable of transmitting or receiving wireless digital information from the said bodily worn device using optical or other wireless- non contact means. Reference Reeves 6,467,690
8. The apparatus of claim 1 wherein the base unit is capable of receiving said digital records in a wireless fashion, in either synchronous or asynchronous radio frequency transmission
9. The apparatus of claim 1 wherein the base unit is capable of storing and organizing the medical records and critical information into prioritized pages for display and viewing, wherein said prioritization is based on a weighted average (or other calculation means) of the clinical severity of the pre-existing medical conditions of said user and the probability of the clinical utility of said medical records in treating the pre-existing medical conditions in order of most severe to least severe.
10. The apparatus of claim 1 wherein the base unit contains software for the logic control of receiving said digital records, organizing said records in priority fashion and displaying said prioritized records on the display screen. Reference figures 7 and 8
11. The apparatus of claim 1 wherein the base unit is capable of archiving and storing multiple digital patient records for retrieval and review.

12. The apparatus of claim 1 wherein the patient module is capable of interfacing with an existing emergency room patient monitor and receiving said wireless transmission of said medical records for display on said existing patient monitor in an emergency situation.

13. The apparatus of claim 1 wherein the slave patient module contains an interface Printed circuit board with electronic contact pads, or other suitable means, for receiving power to the module board from the master module and for transmitting and receiving said digital patient medical records, from the master monitor. The module is a portable plug and play device with no dedicated power or data sources of its own and therefore it is a slave to the monitor it is plugged into and receives power and data through the contact pads.

14. The apparatus of claim 1 wherein the patient module contains an Interface wand and electronic cable for capturing said digital records from 3 said bodily worn device, using non-contact wireless means, and transmitting said records to the patient monitor for storage and display.

15. The apparatus of claim 1 wherein the system contains common software and logic for the seamless storage, wireless transmission, receiving, prioritizing, creation of readable pages and displaying of said pages on a computer screen, patient monitor screen or other appropriate display device. Reference figures 7 and 8.

16. The apparatus of claim 1 wherein the digital data stored in the bodily worn device, storage card or storage disk is encrypted for security and medical confidentiality and such encrypted data is organized and originates in the base unit of the apparatus or an appropriate satellite computer.

17. The apparatus of claim 1 wherein the apparatus performs a sum check operation on the digital data when it is either read from the storage device or written to the storage device to verify the sum of all digital information matches a pre-calculated sum to verify that all digital data is present, complete, and uncorrupted.

18. The apparatus of claim 1 wherein the digital memory storage capacity of patient medical records stored in the bodily worn device, storage card or storage disk is capable of storing a clinically significant amount of medical records and data to treat chronically ill patients. Such data shall include the most current physician examination, current prescriptions, current EKG, blood and urine analysis, a listing of implanted devices, a photo ID, condensed medical history and living will and organ donor instructions. Memory storage capacity within Reeves 6,467,690 is cited as an example.

19. The apparatus of claim 1 wherein the bodily worn device, storage card, and storage disk do not require any on board battery or electrical power source and said electrical power is supplied simultaneous with data reading and writing via non contact optical, inductance or other appropriate non contact means, and data is transferred to and from the storage device in an asynchronous manner. Reference Reeves 6,467,690 and Reeves application 09/578,664

20. The apparatus of claim 1 wherein the monitor module is arranged in hardware and electronics to be a plug in or adaptive device to an existing patient monitor, making use of said existing monitor's data display, computer, operating software, and electrical power source to save space and cost.

21. The apparatus of claim 1 wherein the patient medical records stored in 2 the bodily worn device and storage card and based unit are organized in page format and prioritized based on a weighted average of the most severe pre-existing medical condition and the relative clinical utility of the data in reference to treating a patient in a medical emergency for the most positive medical outcome. Reference Reeves application 09/578,664

22. The apparatus of claim 1 wherein the digital patient data is organized in pre-arranged data arrays and with digital markers (addresses) where said addresses are consistently in used in all hardware of the apparatus (bodily worn device, portable field unit, base unit and interface module) so as to consistently display all data in a standard page format in prearranged data fields to save digital memory space and to reduce computer processing time.

23. The apparatus of claim 1 wherein said bodily worn device, storage card or storage disk is permanently embedded with a digital alphanumeric security marker and the apparatus searches for and recognizes said marker each time data is written to or read from the bodily worn device or storage card. Said system is capable of rejecting unauthorized devices from communicating with the system if said devices do not have said security marker.

24. The apparatus of claim 1 wherein all the hardware components of said system: bodily worn device, storage card, interface wand, portable field unit, interface module and base unit, are capable of two data communications and two way data transmission and reception.

25. The apparatus of claim 1 wherein the bodily worn device, portable field unit and storage disk are encased in weatherproof, rugged and hermetically sealed enclosures and said enclosure is shielded from radio frequency interference.

26. The apparatus of claim 14 wherein the wireless non contact transfer of digital data is accomplished via a radio frequency carrier signal. Reference Reeves US patent 6,467,690.

27. The apparatus of claim 1 wherein the portable field unit, base module and interface module are capable of transmitting and receiving patient records via the Internet or e-mail via wire, optical or wireless communication. Reference Reeves application 09/578,664.

28. The apparatus of claim 1 wherein the high capacity storage card as shown in figure 6 is of the preferred embodiment described in Reeves 6,467,690.

29 The apparatus of claim 1 and claim 19 wherein the data storage devices show in fig 6 contain the means of mechanical alignment via slot or tabs so as to facilitate the alignment of the non-contact optical data transmission sensors . Reference Reeves 6,467,690.

30. A method for storing , retrieving, organizing, and updating medical records and other vital personal information from bodily worn storage devices, comprising:

a. bodily worn storage device, storage card, or storage disk capable of storing high capacity digital medical records and other vital personal emergency information of the user/wearer.

a portable field unit with a unique interface wand capable of retrieving digital patient records and information from the bodily worn device and transmitting said digital information by contact or wireless means in a medical emergency or other type of emergency situation.

a base unit capable of receiving said digital medical records and information and organizing them into readable and medically significant information for emergency medical treatment options

a patient monitor module for interfacing the wireless critical patient information and data with an existing emergency room patient monitoring device

software for digitizing and organizing and displaying said critical patient information in page formats for emergency medical treatment and other applications and usage

software for controlling the internal logic of the portable field unit and the



patient monitoring module and the base unit.

a means, through either contact or wireless non-contact, of sending electrical power from the interface wand to the Bodily worn device, storage card or storage disk, while simultaneously sending and receiving digital data to the Bodily worn device, storage card or storage disk.

31. The method of claim 30 wherein the interface wand is capable of capturing said digital medical records by non-contact optical or wireless means. Reference Reeves 6,467,690 and application 09/578,664

32. The method of claim 30 wherein the bodily worn device is capable of transmitting or receiving said digital medical records from the interface wand by non-contact optical or wireless means.

33. The method of claim 30 wherein the portable field unit is capable of receiving, storing and displaying said medical records on a lighted display screen via the interface wand.

34. The method of claim 30 wherein the portable field unit is capable of wireless transmission of the said digital medical records to said base unit, using the Internet, e-mail or other appropriate digital communications means

35. The method of claim 30 wherein the portable field unit is programmed with software to allow for the organization and display of said digital medical data. Reference figure 7 and 8 and said descriptions.

36. The method of claim 30 wherein the interface wand is capable of transmitting or receiving wireless digital information from the said bodily worn device using optical or other wireless- non contact means. Reference Reeves 6,467,690

37. The method of claim 30 wherein the base unit is capable of receiving said digital records in a wireless fashion, in either synchronous or asynchronous radio frequency transmission

38. The method of claim 30 wherein the base unit is capable of storing and organizing the medical records and critical information into prioritized pages for display and viewing, wherein said prioritization is based on a weighted average (or other calculation means) of the clinical severity of the pre-existing medical conditions of said user and the probability of the clinical utility of said medical records in treating the pre-existing medical conditions in order of most severe to least severe.

39. The method of claim 30 wherein the base unit contains software for the logic control of receiving said digital records, organizing said records in priority fashion and displaying said prioritized records on the display screen. Reference figures 7 and 8

40. The method of claim 30 wherein the base unit is capable of archiving and storing multiple digital patient records for retrieval and review.

41. The method of claim 30 wherein the patient module is capable of interfacing with an existing emergency room patient monitor and receiving said wireless transmission of said medical records for display on said existing patient monitor in an emergency situation.

42. The method of claim 30 wherein the patient module contains an interface Printed circuit board with electronic contact pads, or other suitable means, for transmitting power to the module board and for transmitting and receiving said digital patient medical records.

43. The method of claim 30 wherein the patient module contains an interface wand and electronic cable for capturing said digital records from said bodily worn device, using non-contact wireless means, and transmitting said records to the patient monitor for storage and display.

44. The method of claim 30 wherein the digital data stored in bodily worn device, storage card or storage disk is encrypted for security and medical confidentiality and such encrypted data is organized and originates in the base unit of the apparatus or an appropriate satellite computer.

45. The method of claim 30 wherein the apparatus performs a sum check operation on the digital data when it is either read from the storage device or written to the storage device to verify the sum of all digital information matches a pre-calculated sum to verify that all digital data is present, complete, and uncorrupted.

46. The method of claim 30 wherein the digital memory storage capacity of patient medical records stored in the bodily worn device, storage card or storage disk is capable of storing a clinically significant amount of medical records and data to treat chronically ill patients. Such data shall include the most current physician examination, current prescriptions, current EKG, blood and urine analysis, a listing of implanted devices, a photo ID, condensed medical history and living will and organ donor instructions. Memory storage capacity within Reeves 6,467,690 is cited as an example.

47. The method of claim 30 wherein the bodily worn device, storage card, and storage disk do not require any on board battery or electrical power source and said electrical power is supplied simultaneous with data reading and writing via non contact optical, inductance or other appropriate non contact means, and data is transferred to and from the storage device in an asynchronous manner. Reference Reeves 6,467,690 and Reeves application 09/578,664 and 09/597,107

48. The method of claim 30 wherein the monitor module is arranged in hardware and electronics to be a plug in or adaptive device to an existing patient monitor, making use of said existing monitor's data display, computer, operating software, and electrical power source to save space and cost.

49. The method of claim 30 wherein the patient medical records stored in the bodily worn device and storage card and based unit are organized in page format and prioritized based on a weighted average of the most severe pre-existing medical condition and the relative clinical utility of the data in reference to treating a patient in a medical emergency for the most positive medical outcome. Reference Reeves application 09/578,664

50. The method of claim 30 wherein the digital patient data is organized in pre-arranged data arrays and with digital markers (addresses) where said addresses are consistently in used in all hardware of the apparatus (bodily worn device, portable field unit, base unit and interface module) so as to consistently display all data in a standard page format in prearranged data fields to save digital memory space and to reduce computer processing time.

51. The method of claim 30 wherein bodily worn device, storage card or storage disk is permanently embedded with a digital alphanumeric security marker and the apparatus searches for and recognizes said marker each time data is written to or read from the bodily worn device or storage card. Said system is capable of rejecting unauthorized devices from communicating with the system if said devices do not have said security marker.

52. The method of claim 30 wherein all the hardware components of said system: bodily worn device, storage card, interface wand, portable field unit, interface module and base unit, are capable of two data communications and two way data transmission and reception.

53. The method of claim 30 wherein the bodily worn device, portable field unit and storage disk are encased in weatherproof, rugged and hermetically sealed enclosures and said enclosure is shielded from radio frequency interference.

54. The method of claim 36 wherein the wireless non contact transfer of digital data is accomplished via a radio frequency carrier signal. Reference Reeves US patent 6,467,690.

55. The method of claim 30 wherein the portable field unit , base module and interface module are capable of transmitting and receiving patient records via the Internet or e-mail via wire, optical or wireless communication. Reference Reeves application 09/578,664.

56. The method of claim 30 wherein the high capacity storage card as shown in figure 6 is of the preferred embodiment described in Reeves 6,467,690.

57. The method of claim 30 and claim 47 wherein the data storage devices show in fig 6 contain the means of mechanical alignment via slot or tabs so as to facilitate the alignment of the non-contact optical data transmission sensors . Reference Reeves 6,467,690.

## J. ABSTRACT

A seamless and compatible system comprised of various hardware and software components for storing and carrying digital medical records on bodily worn devices, accessing said medical records from bodily worn devices via wireless interface wands, displaying said medical records on portable hand held devices and screens, transmitting said medical records to either base unit computers or patient monitoring modules in emergency rooms, Also disclosed are unique methods for organizing and prioritizing said medical records via a unique weighted average risk factoring based on pre-existing conditions, access to medical records and prognosis during treatment. Also disclosed is a unique means of interfacing the system to the Internet to access said medical records from remote locations and for convenient updating of said records via remote locations.

FIG. 1

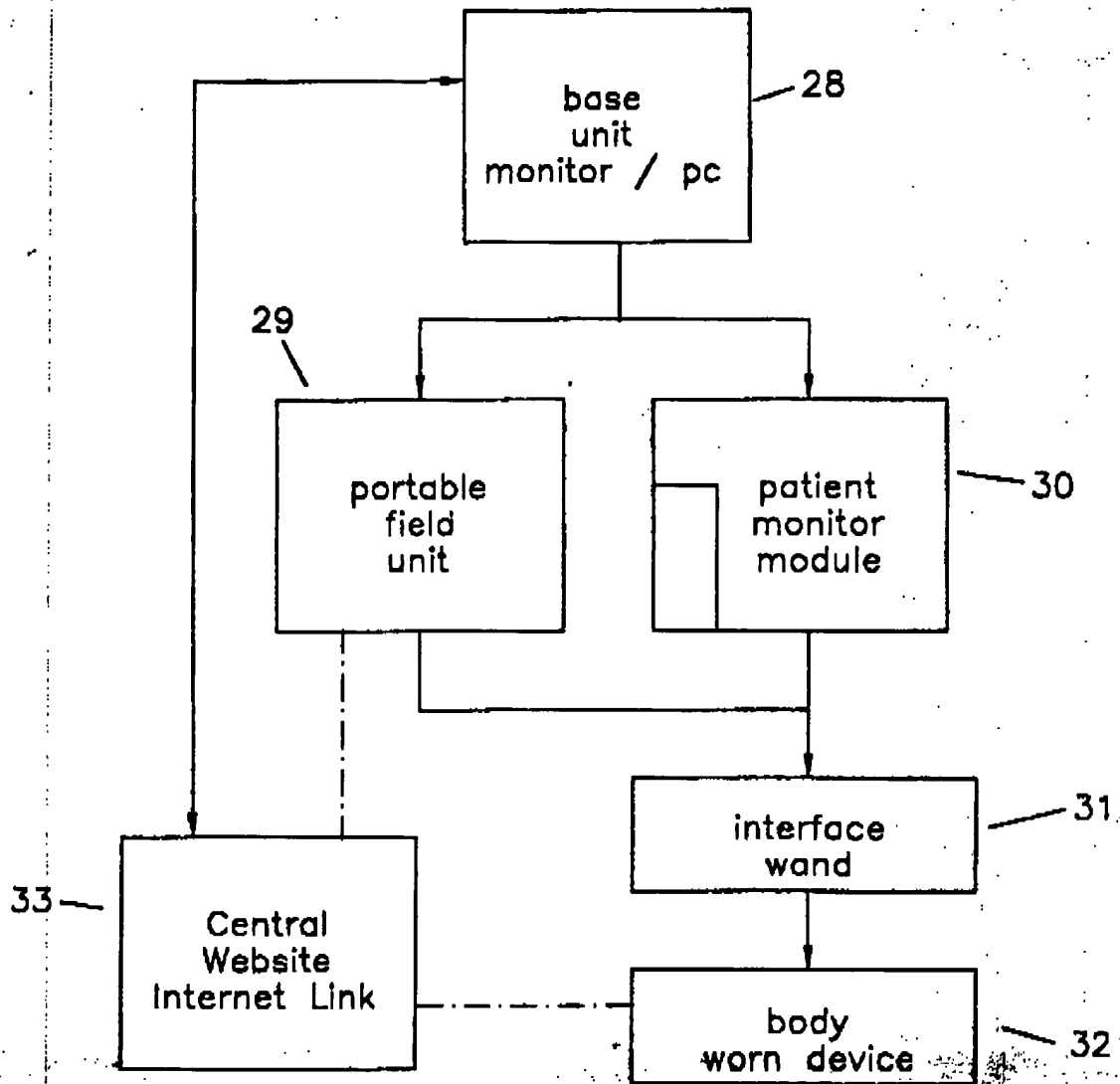
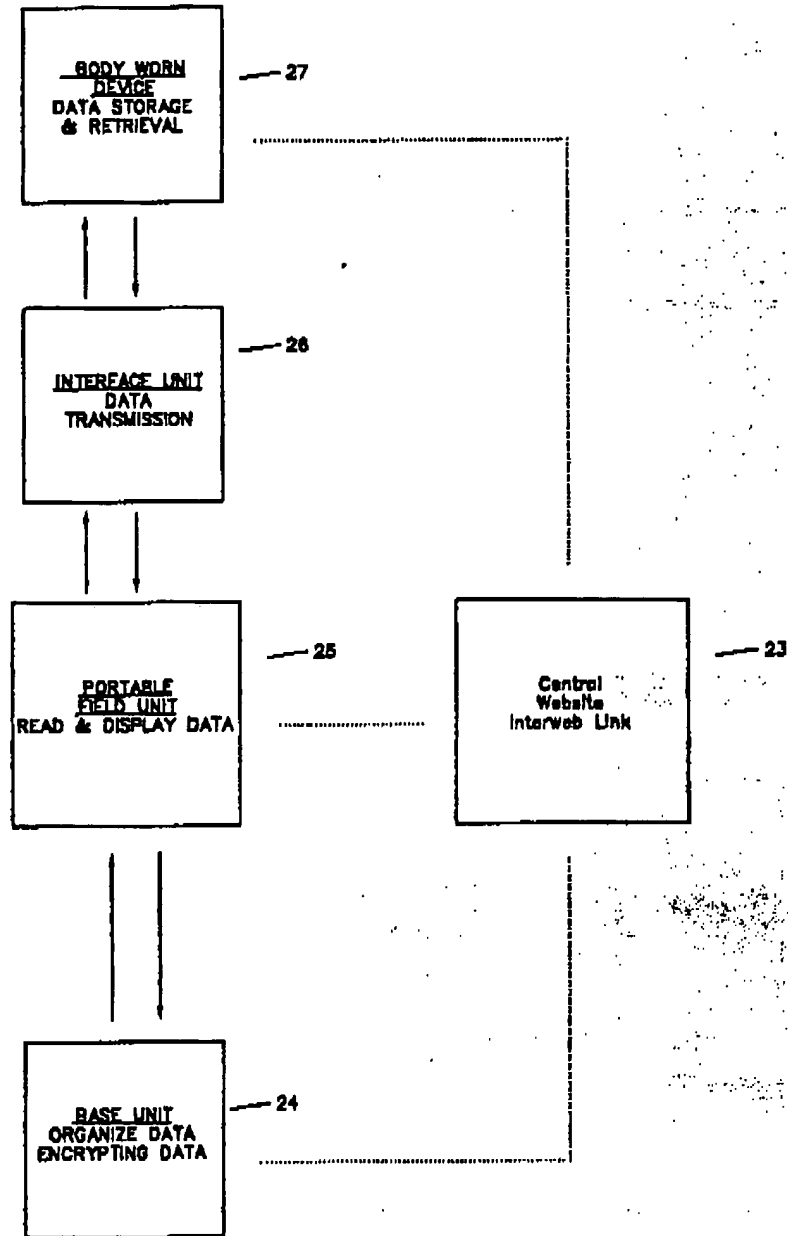


FIG. 2



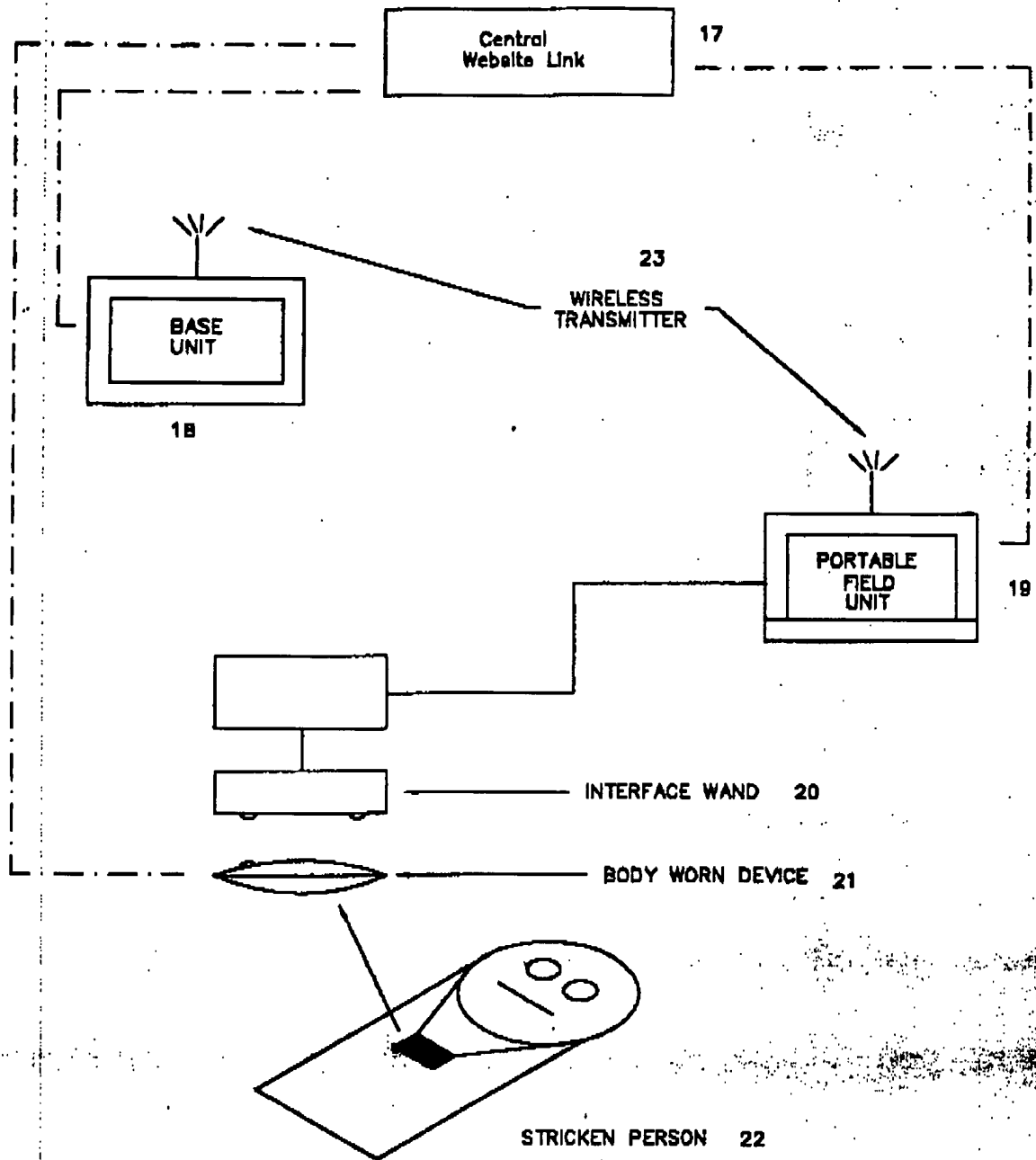


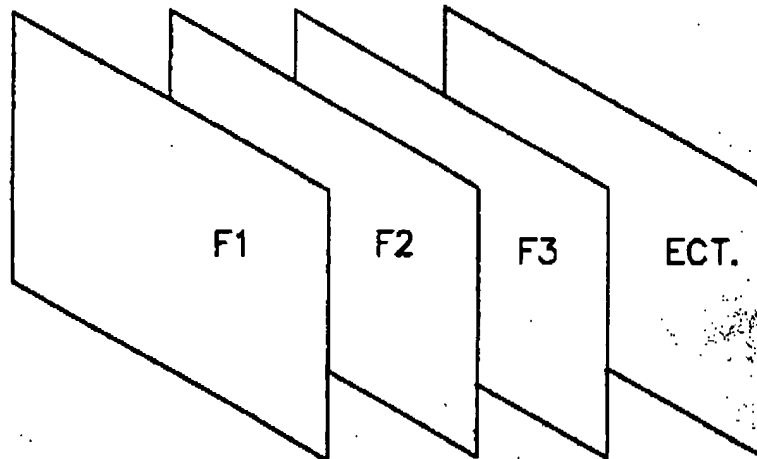
FIG. 3



FIG. 4

16

PHOTO I.D.	FINGER PRINT	IRIS PRINT	DENTAL RECORDS	SAMPLE ECG ULTRASOUND
EMERGENCY MEDICAL RECORDS BLOOD TYPE DRUG REACTIONS PRE-EXISTING CONDITIONS				
EMERGENCY TREATMENT INSTRUCTIONS: PHYSICIAN PRE-EXISTING CONDITIONS				
ORGAN DONOR INSTRUCTIONS:				
LIVING WILL INSTRUCTIONS:				



17

Highest priority ————— lowest priority  
Highest risk ————— lowest risk

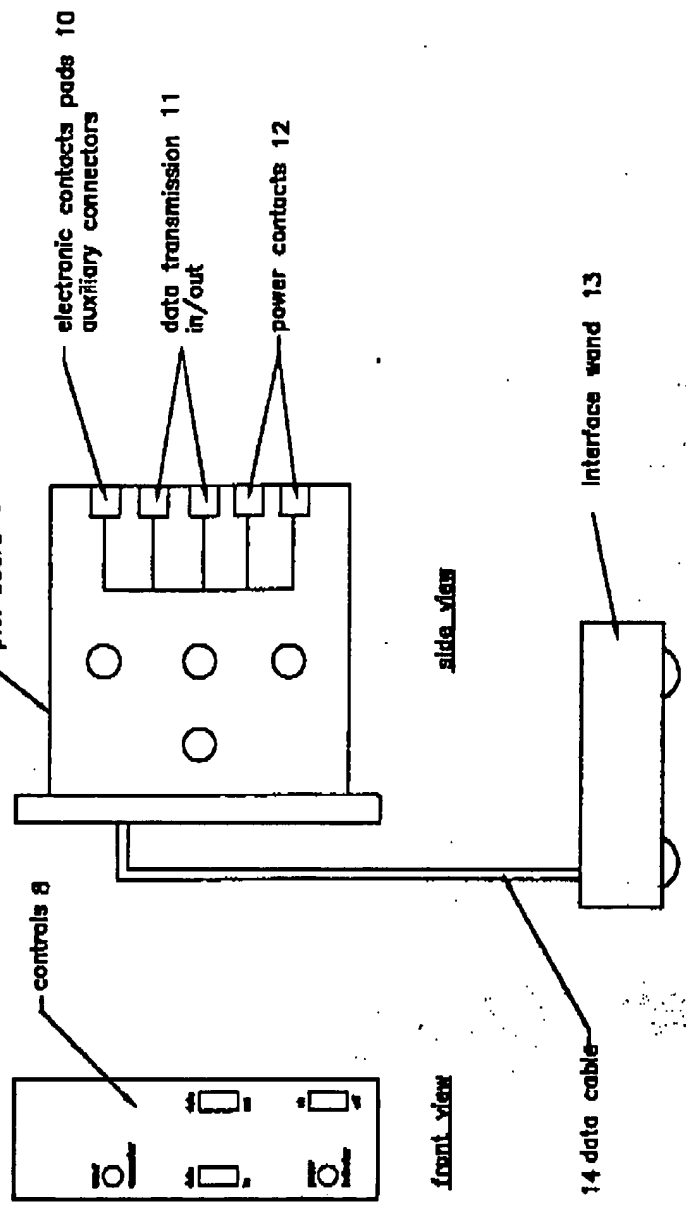


FIG. 5

Interface module - I/O slot card 15

FIG. 6

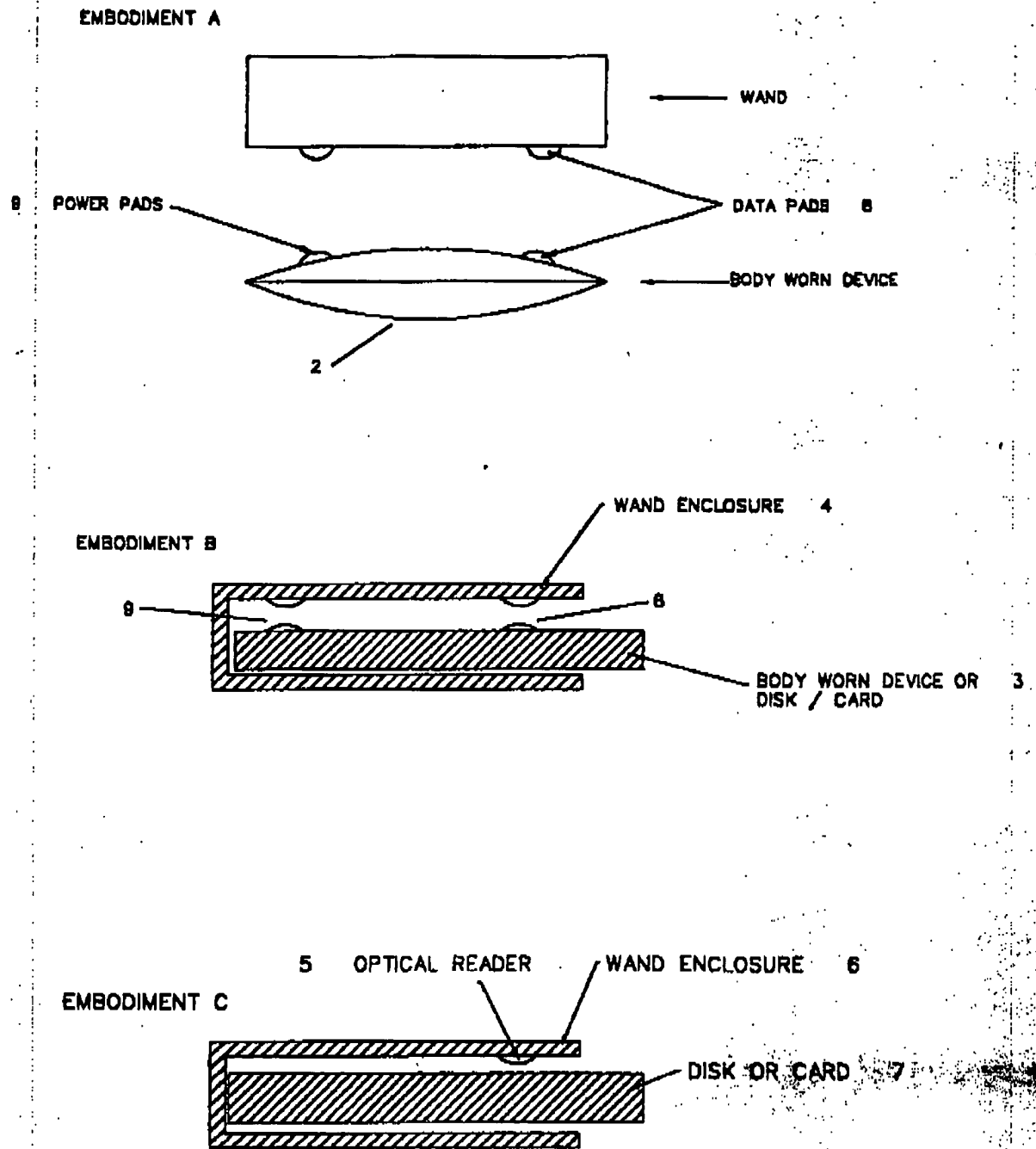


Fig. 7

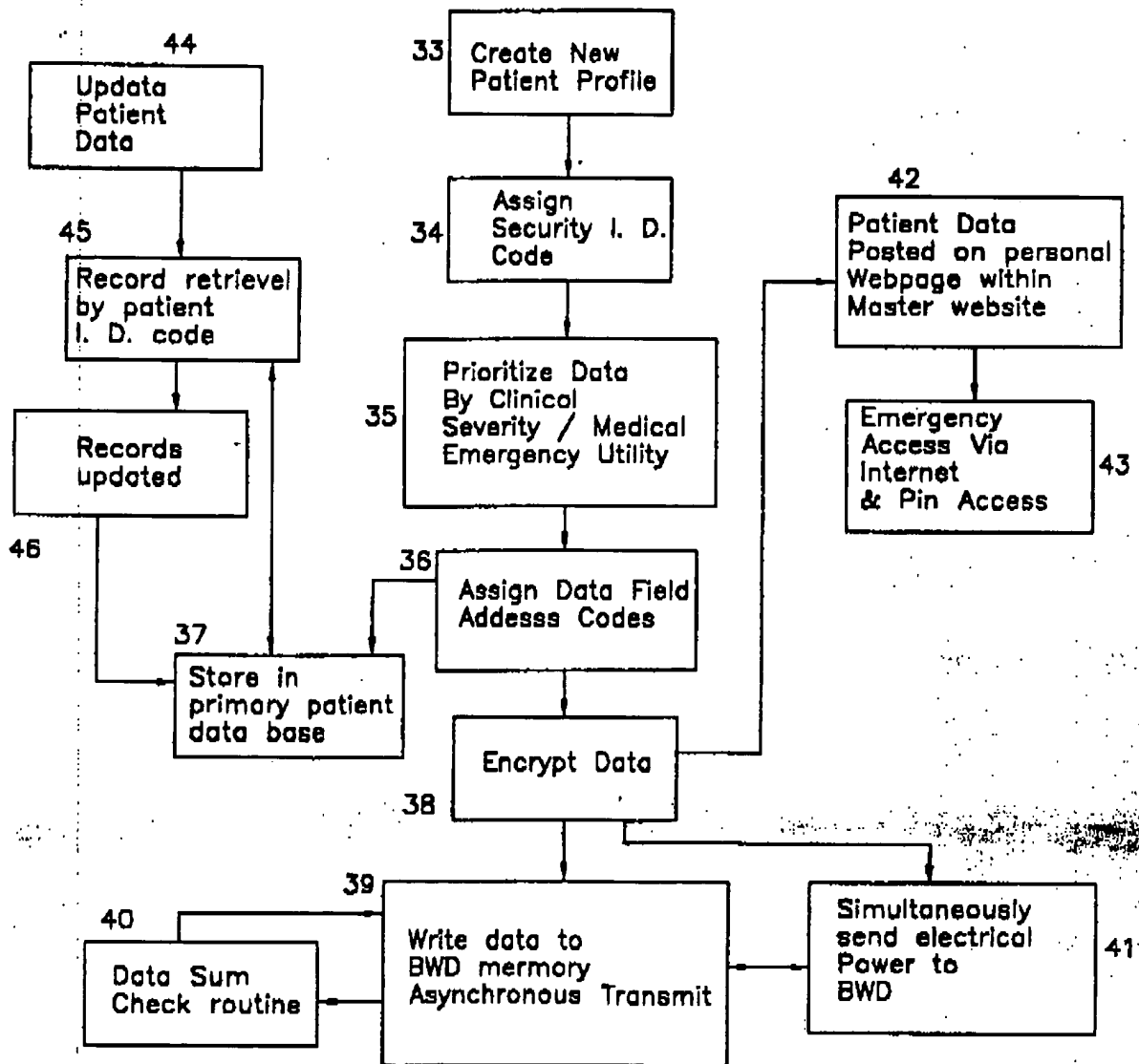


Fig. 8

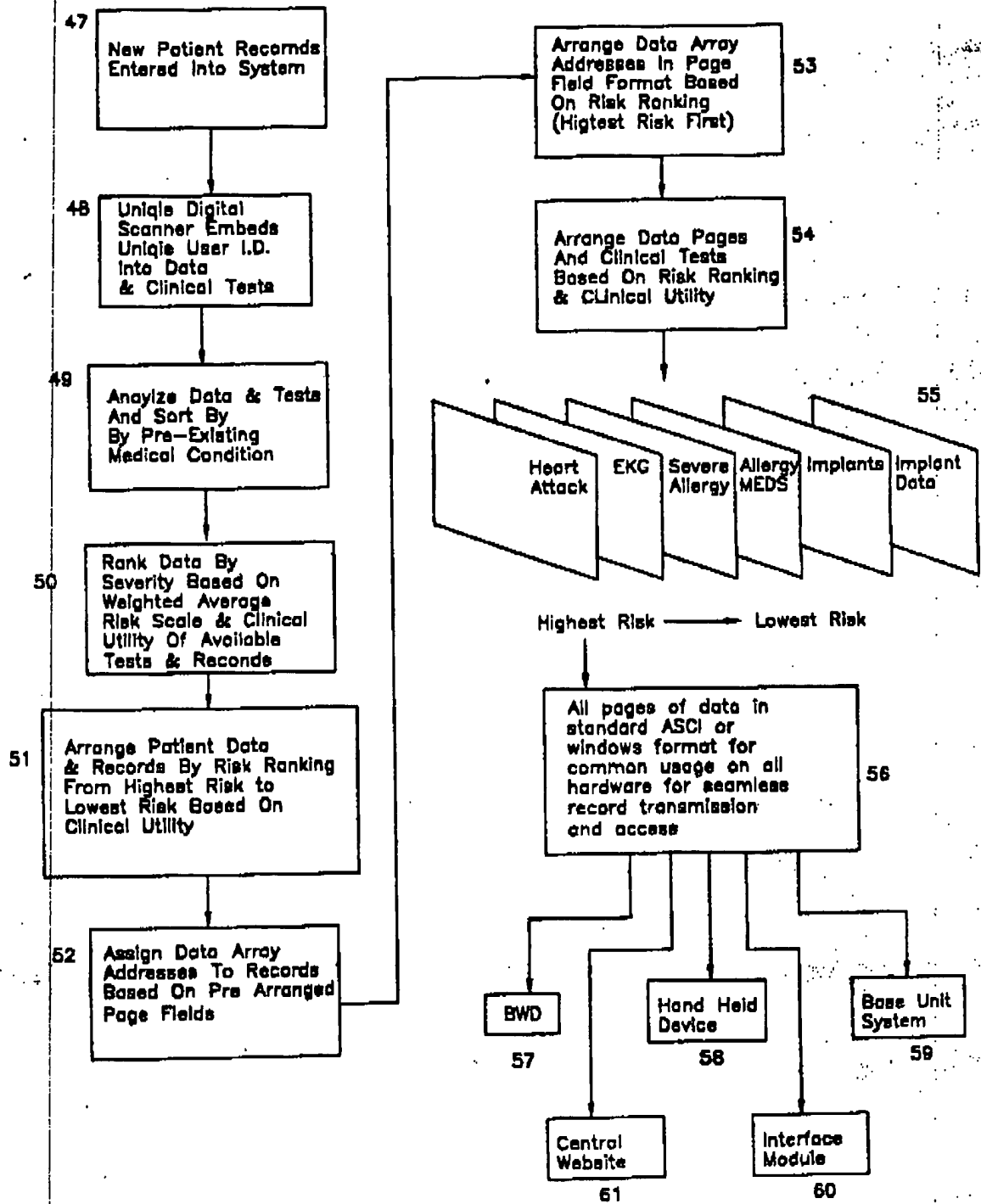


Fig. 9

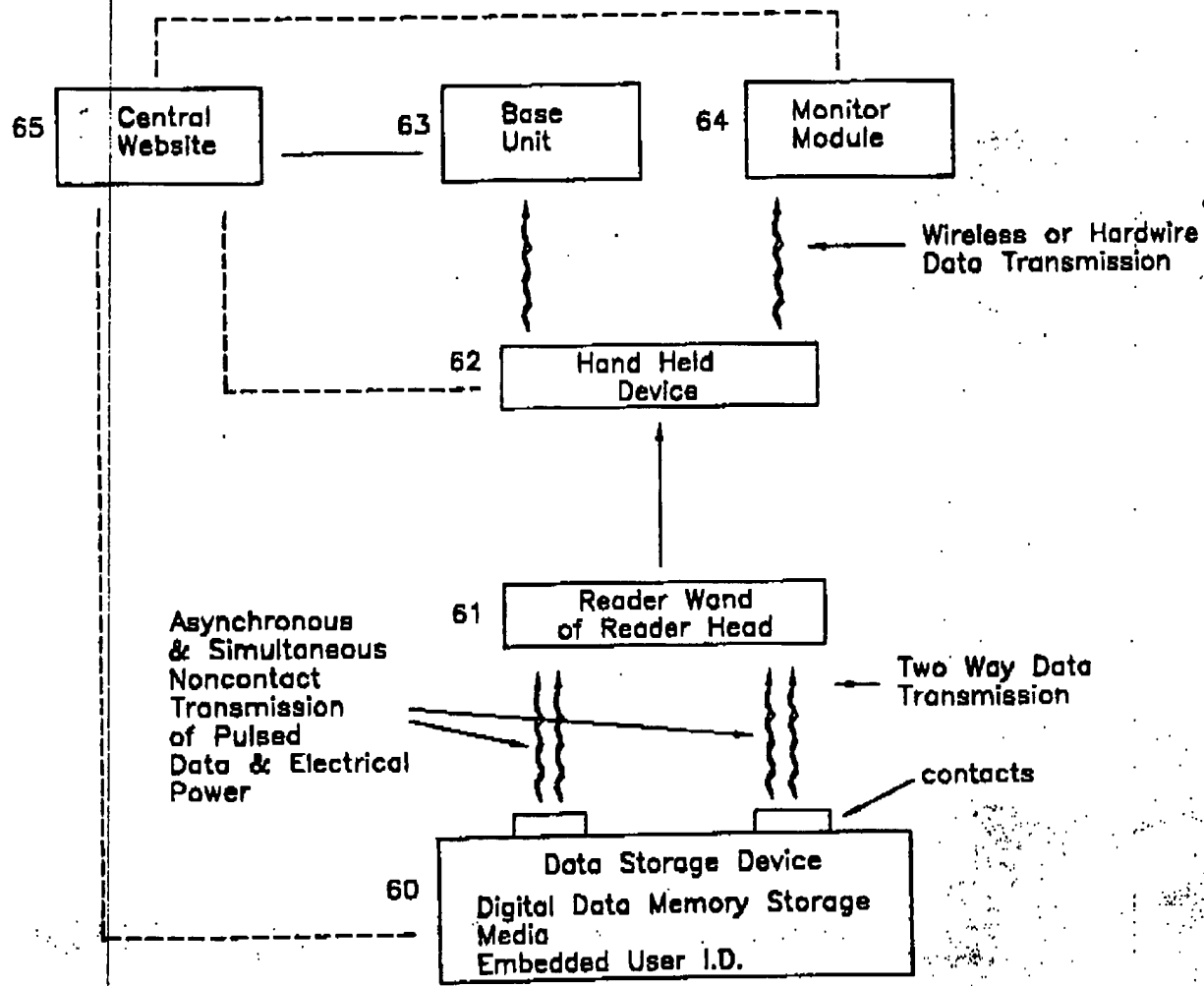


Fig. 10

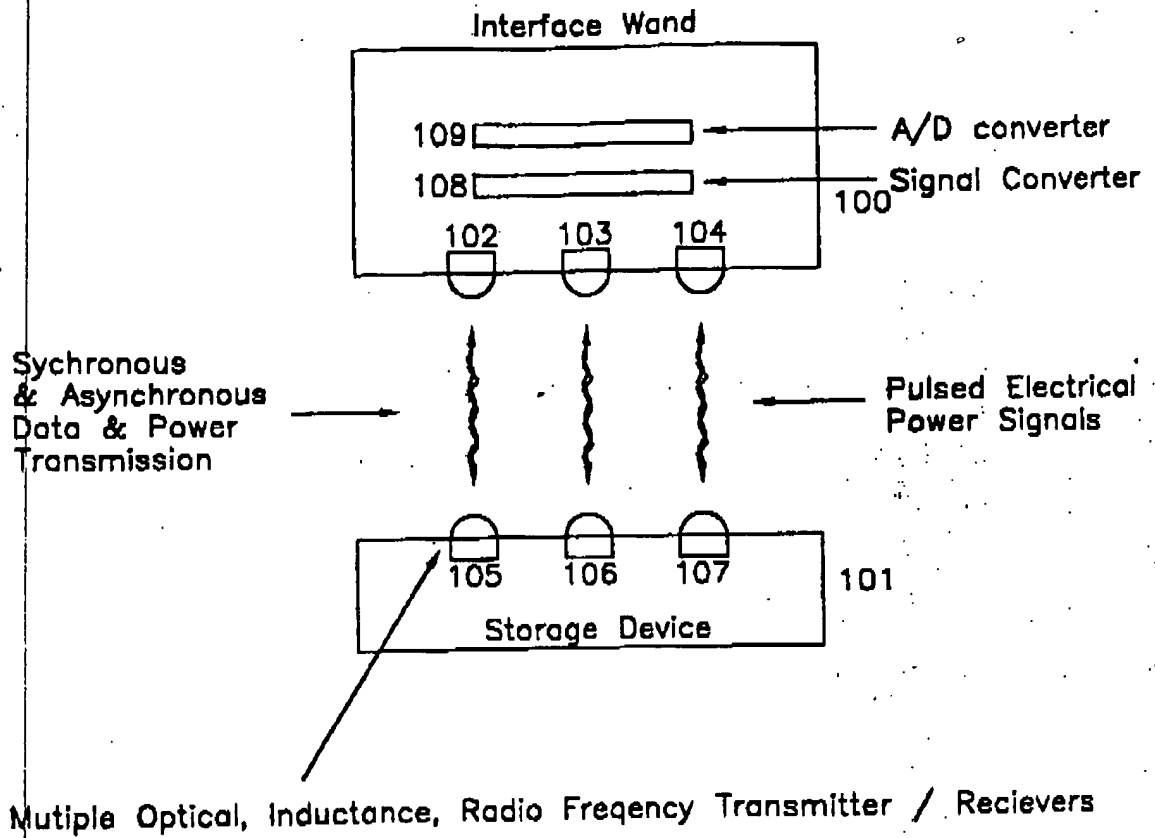


Fig. 11

